

CORRECTED  
VERSION\*CORRECTED  
VERSION\*\*

B201

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>G01N 33/574</b>	<b>A2</b>	(11) International Publication Number: <b>WO 99/04265</b> (43) International Publication Date: <b>28 January 1999 (28.01.99)</b>
---	-----------	---

(21) International Application Number: **PCT/US98/14679**(22) International Filing Date: **15 July 1998 (15.07.98)**

[UA/GB]; 91 Riding House Street, London W1P 8BT (GB). O'HARE, Michael [GB/GB]; 91 Riding House Street, London W1P 8BT (GB). OBATA, Yuichi [JP/JP]; Chikusa-Ku, Nagoya 464 (JP). PFREUNDSCHEIDT, Michael [DE/DE]; Innere Medizin 1, D-66421 Homburg/Saar (DE). TURECI, Ozlem [DE/DE]; Innere Medizin 1, D-66421 Homburg/Saar (DE). SAHIN, Ugur [TR/DE]; Innere Medizin 1, D-66421 Homburg/Saar (DE).

## (30) Priority Data:

08/896,164	17 July 1997 (17.07.97)	US
60/061,599	10 October 1997 (10.10.97)	US
60/061,765	10 October 1997 (10.10.97)	US
08/948,705	10 October 1997 (10.10.97)	US
9721697.2	11 October 1997 (11.10.97)	GB
09/102,322	22 June 1998 (22.06.98)	US

(74) Agent: VAN AMSTERDAM, John, R.; Wolf, Greenfield &amp; Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210 (US).

(71) Applicant (for all designated States except US): LUDWIG INSTITUTE FOR CANCER RESEARCH [CH/US]; 605 Third Avenue, New York, NY 10158 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): OLD, Lloyd, J. [US/US]; 1345 Avenue of the Americas, New York, NY 10105 (US). SCANLAN, Matthew, J. [US/US]; 1275 York Avenue, New York, NY 10021 (US). STOCKERT, Elisabeth [US/US]; 1275 York Avenue, New York, NY 10021 (US). GURE, Ali [TR/US]; 1275 York Avenue, New York, NY 10021 (US). CHEN, Yao-Tseng [-/US]; The New York Hospital-Cornell Medical Center, Dept. of Pathology, 525 East 68th Street, New York, NY 10021 (US). GOUT, Ivan

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

## Published

Without international search report and to be republished upon receipt of that report.

(54) Title: **CANCER ASSOCIATED NUCLEIC ACIDS AND POLYPEPTIDES**

NY-LU-12 KESPPPPKVVNPLIGLLCHYGGSDYEEEEEETPPPPRTAQPKREEQTKENEEDKLTDMNKLACILCRROFFPNKEVL 970  
 LUCA15 PELVRNGDEENPLKRGVAAVYSGDSNNEE.....ELVERLESEEEKLADWKKMACILCRROFFPNKDAL 662  
 DXS8237E DLPKLASDDRPSPRGLVAAVYSGDSNEE.....EQERGGPEREEKLTDMNKLACILCRROFFPNKEAL 233

NY-LU-12 IKHQQLSDLPKQNLIEHRTKQSEQLAYLERRERE.GKFKGRGNDREKLQSFDSPERKRIKYSRETD..DRKLVDKEDID 1050  
 LUCA15 VRHQQLSDLEKQNDIYRRSRLESEQLSALELRERE..NKYDRAAERREKYGIPEPPPEPKKKQFDAGTV..NYEQPTDGDID 742  
 DXS8237E IRHQQLSGLHKQNLIEHRAHLESENELEALERNDMEQMYDRAAERREKYGIPEPPPEPKRRKYGGISTASVDPEQPTDGLG 316

NY-LU-12 TSSKGGCVQQTGWRRGTGLGYGHPGLASSEAEGRMRGSPVGASGRTSKRQSNETTRDAVRRVVFARYKELD 1123  
 LUCA15 ESNIGNQLQAMGREGSGLRKQCQITAPIEAQVRLGAGLGARGSAYGLSGADSYKDAVRKAMPARPIEME 815  
 DXS8237E SDNIGSRMLQAMGREGSGLRKQGIIVTPIEAQTRVRGSLGARGSSYGVTSYKETLHKTNTVTRFNEAQ 389

## (57) Abstract

Various molecules associated with cancer are disclosed. The invention also discloses diagnostic and therapeutic methods based upon these molecules.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						



## CANCER ASSOCIATED NUCLEIC ACIDS AND POLYPEPTIDES

### Field of the Invention

The invention relates to nucleic acids and encoded polypeptides which are cancer  
5 associated antigens expressed in patients afflicted with breast cancer. The invention also relates  
to agents which bind the nucleic acids or polypeptides. The nucleic acid molecules,  
polypeptides coded for by such molecules and peptides derived therefrom, as well as related  
antibodies and cytolytic T lymphocytes, are useful, *inter alia*, in diagnostic and therapeutic  
contexts.

10

### Background of the Invention

The mechanism by which T cells recognize foreign materials has been implicated in  
cancer. A number of cytolytic T lymphocyte (CTL) clones directed against autologous  
melanoma antigens, testicular antigens, and melanocyte differentiation antigens have been  
15 described. In many instances, the antigens recognized by these clones have been  
characterized.

The use of autologous CTLs for identifying tumor antigens requires that the target cells  
which express the antigens can be cultured *in vitro* and that stable lines of autologous CTL  
clones which recognize the antigen-expressing cells can be isolated and propagated. While this  
20 approach has worked well for melanoma antigens, other tumor types, such as epithelial cancers  
including breast and colon cancer, have proved refractory to the approach.

More recently another approach to the problem has been described by Sahin et al. (*Proc.  
Natl. Acad. Sci. USA* 92:11810-11813, 1995). According to this approach, autologous antisera  
are used to identify immunogenic protein antigens expressed in cancer cells by screening  
25 expression libraries constructed from tumor cell cDNA. Antigen-encoding clones so identified  
have been found to have elicited an high-titer humoral immune response in the patients from  
which the antisera were obtained. Such a high-titer IgG response implies helper T cell  
recognition of the detected antigen. These tumor antigens can then be screened for the presence  
of MHC/HLA class I and class II motifs and reactivity with CTLs

30 The invention is elaborated upon in the disclosure which follows.

### Summary of the Invention

Autologous antibody screening has now been applied to cancer using antisera from cancer patients. Numerous cancer associated antigens have been identified. The invention provides, *inter alia*, isolated nucleic acid molecules, expression vectors containing those molecules and host cells transfected with those molecules. The invention also provides isolated proteins and peptides, antibodies to those proteins and peptides and CTLs which recognize the proteins and peptides. Fragments including functional fragments and variants of the foregoing also are provided. Kits containing the foregoing molecules additionally are provided. The foregoing can be used in the diagnosis, monitoring, research, or treatment of conditions characterized by the expression of one or more cancer associated antigens.

Prior to the present invention, only a handful of cancer associated genes had been identified in the past 20 years. The invention involves the surprising discovery of many genes, some previously known and many previously unknown, which are expressed in individuals who have cancer. These individuals all have serum antibodies against the proteins (or fragments thereof) encoded by these genes. Thus, abnormally expressed genes are recognized by the host's immune system and therefore can form a basis for diagnosis, monitoring and therapy.

The invention involves the use of a single material, a plurality of different materials and even large panels and combinations of materials. For example, a single gene, a single protein encoded by a gene, a single functional fragment thereof, a single antibody thereto, etc. can be used in methods and products of the invention. Likewise, pairs, groups and even panels of these materials can be used for diagnosis, monitoring and therapy. The pairs, groups or panels can involve 2, 3, 4, 5... to as many as 25, 50, 100 or more genes, gene products, fragments thereof or agents that recognize such materials. A plurality of such materials are not only useful in monitoring, typing, characterizing and diagnosing cells abnormally expressing such genes, but a plurality of such materials can be used therapeutically. An example of the use of a plurality of such materials for the prevention, delay of onset, amelioration, etc. of cancer cells, which express or will express such genes prophylactically or acutely. Any and all combinations of the genes, gene products, and materials which recognize the genes and gene products can be tested and identified for use according to the invention. It would be far too lengthy to recite all such combinations; those skilled in the art, particularly in view of the teaching contained herein, will readily be able to determine which combinations are most appropriate for which circumstances.

As will be clear from the following discussion, the invention has *in vivo* and *in vitro* uses,

including for therapeutic, diagnostic, monitoring and research purposes. One aspect of the invention is the ability to fingerprint a cell expressing a number of the genes identified according to the invention. Such fingerprints will be characteristic, for example, of the stage of the cancer, the type of the cancer, or even the effect in animal models of a therapy on a cancer.

---

5 Cells also can be screened to determine whether such cells abnormally express the genes identified according to the invention.

The invention, in one aspect, is a method of diagnosing a disorder characterized by expression of a cancer associated antigen precursor coded for by a nucleic acid molecule. The method involves the steps of contacting a biological sample isolated from a subject with an  
10 agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an expression product thereof complexed with an MHC, preferably an HLA, molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and determining the interaction between the agent and the nucleic acid molecule, the expression product or fragment of the expression product as a determination of the disorder.

15 In one embodiment the agent is selected from the group consisting of (a) a nucleic acid molecule comprising NA Group 1 nucleic acid molecules or a fragment thereof, (b) a nucleic acid molecule comprising NA Group 3 nucleic acid molecules or a fragment thereof, (c) a nucleic acid molecule comprising NA Group 17 nucleic acid molecules or a fragment thereof, (d) an antibody that binds to an expression product, or a fragment thereof, of NA group 1  
20 nucleic acids, (e) an antibody that binds to an expression product, or a fragment thereof, of NA group 3 nucleic acids, (f) an antibody that binds to an expression product, or a fragment thereof, of NA group 17 nucleic acids, (g) and agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 1 nucleic acid, (h) an agent that binds to a complex of an MHC, preferably HLA, molecule and a  
25 fragment of an expression product of a NA group 3 nucleic acid, and (I) an agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 17 nucleic acid.

The disorder may be characterized by expression of a plurality of cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which is specific for  
30 a different human cancer associated antigen precursor, and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 5, at least 6, at least 7, at least 8, at least 9 or at least 10 such agents.

In each of the above embodiments the agent may be specific for a human cancer associated antigen precursor that is a breast, a gastric, a lung, a prostate, a renal or a colon cancer associated antigen precursor.

In another aspect the invention is a method for determining regression, progression or onset of a condition characterized by expression of abnormal levels of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule. The method involves the steps of monitoring a sample, from a subject who has or is suspected of having the condition, for a parameter selected from the group consisting of (i) the protein, (ii) a peptide derived from the protein, (iii) an antibody which selectively binds the protein or peptide, and (iv) cytolytic T cells specific for a complex of the peptide derived from the protein and an MHC molecule, as a determination of regression, progression or onset of said condition. In one embodiment the sample is a body fluid, a body effusion or a tissue.

In another embodiment the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of (a) an antibody which selectively binds the protein of (i), or the peptide of (ii), (b) a protein or peptide which binds the antibody of (iii), and (c) a cell which presents the complex of the peptide and MHC molecule of (iv). In a preferred embodiment the antibody, the protein, the peptide or the cell is labeled with a radioactive label or an enzyme. The sample in a preferred embodiment is assayed for the peptide.

According to another embodiment the nucleic acid molecule is one of the following: a NA Group 3 molecule, a NA Group 11 molecule, a NA Group 12 molecule, a NA Group 13 molecule, a NA Group 14 molecule, a NA Group 15 molecule, or a NA Group 16 molecule. In yet another embodiment the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different of the plurality of proteins.

The invention in another aspect is a pharmaceutical preparation for a human subject. The pharmaceutical preparation includes an agent which when administered to the subject enriches selectively the presence of complexes of an HLA molecule and a human cancer associated antigen, and a pharmaceutically acceptable carrier, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule which comprises a NA Group 1 molecule. In one embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

The agent in one embodiment comprises a plurality of agents, each of which enriches selectively in the subject complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least two, at least three, at least four or at least 5 different such agents.

5 In another embodiment the agent is selected from the group consisting of (1) an isolated polypeptide comprising the human cancer associated antigen, or a functional variant thereof, (2) an isolated nucleic acid operably linked to a promoter for expressing the isolated polypeptide, or functional variant thereof, (3) a host cell expressing the isolated polypeptide, or functional variant thereof, and (4) isolated complexes of the polypeptide, or functional  
10 variant thereof, and an HLA molecule.

The agent may be a cell expressing an isolated polypeptide. In one embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell is nonproliferative. In another embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer  
15 associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide. The cell can express one or both of the polypeptide and HLA molecule recombinantly. In another preferred embodiment the cell is nonproliferative. In yet another embodiment the agent is at least two, at least three, at least four or at least five different polypeptides, each representing a different human cancer associated antigen or  
20 functional variant thereof.

The agent in one embodiment is a PP Group 2 polypeptide. In other embodiments the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.

In an embodiment each of the pharmaceutical preparations described herein also includes an adjuvant.

25 According to another aspect the invention, a composition is provided of an isolated agent that binds selectively a PP Group 1 polypeptide. In separate embodiments the agent binds selectively to a polypeptide selected from the following: a PP Group 3 polypeptide, a PP Group 11 polypeptide, a PP Group 12 polypeptide, a PP Group 13 polypeptide, a PP Group 14 polypeptide, a PP Group 15 polypeptide, and a PP Group 16 polypeptide. In other  
30 embodiments, the agent is a plurality of different agents that bind selectively at least two, at least three, at least four, or at least five different such polypeptides. In each of the above described embodiments the agent may be an antibody.

In another aspect the invention is a composition of matter composed of a conjugate of the agent of the above-described compositions of the invention and a therapeutic or diagnostic agent. Preferably the conjugate is of the agent and a therapeutic or diagnostic that is an antineoplastic.

5       The invention in another aspect is a pharmaceutical composition of an isolated nucleic acid molecule selected from the group consisting of: (1) NA Group 1 molecules, and (2) NA Group 2 molecules, and a pharmaceutically acceptable carrier. In one embodiment the isolated nucleic acid molecule comprises a NA Group 3 or NA Group 4 molecule. In another embodiment the isolated nucleic acid molecule comprises at least two isolated nucleic acid  
10   molecules coding for two different polypeptides, each polypeptide comprising a different cancer associated antigen.

      Preferably the pharmaceutical composition also includes an expression vector with a promoter operably linked to the isolated nucleic acid molecule. In another embodiment the pharmaceutical composition also includes a host cell recombinantly expressing the isolated  
15   nucleic acid molecule.

      According to another aspect of the invention a pharmaceutical composition is provided. The pharmaceutical composition includes an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, and a pharmaceutically acceptable carrier. In one embodiment the isolated polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.

20       In another embodiment the isolated polypeptide comprises at least two different polypeptides, each comprising a different cancer associated antigen. In separate embodiments the isolated polypeptides are selected from the following: PP Group 11 polypeptides or HLA binding fragments thereof, PP Group 12 polypeptides or HLA binding fragments thereof, PP Group 13 polypeptides or HLA binding fragments thereof, PP Group 14 polypeptides or HLA  
25   binding fragments thereof, PP Group 15 polypeptides or HLA binding fragments thereof, or PP Group 16 polypeptides or HLA binding fragments thereof.

      In an embodiment each of the pharmaceutical compositions described herein also includes an adjuvant.

      Another aspect the invention is an isolated nucleic acid molecule comprising a NA  
30   Group 3 molecule. Another aspect the invention is an isolated nucleic acid molecule comprising a NA Group 4 molecule. In separate embodiments the isolated nucleic acid molecules are selected from the following: a Group 11 molecule or a functional fragment

thereof, a Group 12 molecule or a functional fragment thereof, a Group 13 molecule or a functional fragment thereof, a Group 14 molecule or a functional fragment thereof, a Group 15 molecule or a functional fragment thereof, or a Group 16 molecule or a functional fragment thereof.

---

5     ~~The invention in another aspect is an isolated nucleic acid molecule selected from the~~  
group consisting of (a) a fragment of a nucleic acid selected from the group of nucleic acid  
molecules consisting of SEQ ID numbered below and comprising all nucleic acid sequences  
among SEQ ID NOs 1-816, of sufficient length to represent a sequence unique within the  
human genome, and identifying a nucleic acid encoding a human cancer associated antigen  
10 precursor, (b) complements of (a), provided that the fragment includes a sequence of  
contiguous nucleotides which is not identical to any sequence selected from the sequence group  
consisting of (1) sequences having the GenBank accession numbers of the sequence Group 1,  
(2) complements of (1), and (3) fragments of (1) and (2).

In one embodiment the sequence of contiguous nucleotides is selected from the group  
15 consisting of: (1) at least two contiguous nucleotides nonidentical to the sequence Group 1, (2)  
at least three contiguous nucleotides nonidentical to the sequence Group 1, (3) at least four  
contiguous nucleotides nonidentical to the sequence Group 1, (4) at least five contiguous  
nucleotides nonidentical to the sequence Group 1, (5) at least six contiguous nucleotides  
nonidentical to the sequence Group 1, or (6) at least seven contiguous nucleotides nonidentical  
20 to the sequence Group 1.

In another embodiment the fragment has a size selected from the group consisting of at  
least: 8 nucleotides, 10 nucleotides, 12 nucleotides, 14 nucleotides, 16 nucleotides, 18  
nucleotides, 20, nucleotides, 22 nucleotides, 24 nucleotides, 26 nucleotides, 28 nucleotides, 30  
nucleotides, 50 nucleotides, 75 nucleotides, 100 nucleotides, 200 nucleotides, 1000 nucleotides  
25 and every integer length therebetween.

In yet another embodiment the molecule encodes a polypeptide which, or a fragment of  
which, binds a human HLA receptor or a human antibody.

Another aspect of the invention is an expression vector comprising an isolated nucleic  
acid molecule of the invention described above operably linked to a promoter.

30     According to one aspect the invention is an expression vector comprising a nucleic acid  
operably linked to a promoter, wherein the nucleic acid is a NA Group 2 molecule. In another  
aspect the invention is an expression vector comprising a NA Group 1 or Group 2 molecule

and a nucleic acid encoding an MHC, preferably HLA, molecule.

In yet another aspect the invention is a host cell transformed or transfected with an expression vector of the invention described above.

In another aspect the invention is a host cell transformed or transfected with an  
5 expression vector comprising an isolated nucleic acid molecule of the invention described  
above operably linked to a promoter, or an expression vector comprising a nucleic acid  
operably linked to a promoter, wherein the nucleic acid is a NA Group 1 or 2 molecule and  
further comprising a nucleic acid encoding HLA.

According to another aspect of the invention an isolated polypeptide encoded by the  
10 isolated nucleic acid molecules the invention, described above, is provided. These include PP  
Group 1-17 polypeptides. The invention also includes a fragment of the polypeptide which is  
immunogenic. In one embodiment the fragment, or a portion of the fragment, binds HLA or a  
human antibody.

The invention includes in another aspect an isolated fragment of a human cancer  
15 associated antigen precursor which, or portion of which, binds HLA or a human antibody,  
wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule.  
In one embodiment the fragment is part of a complex with HLA. In another embodiment the  
fragment is between 8 and 12 amino acids in length. In another embodiment the invention  
includes an isolated polypeptide comprising a fragment of the polypeptide of sufficient length  
20 to represent a sequence unique within the human genome and identifying a polypeptide that is  
a human cancer associated antigen precursor.

According to another aspect of the invention a kit for detecting the presence of the  
expression of a cancer associated antigen precursor is provided. The kit includes a pair of  
isolated nucleic acid molecules each of which consists essentially of a molecule selected from  
25 the group consisting of (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence  
of any of the NA Group 1 molecules and (b) complements of ("a"), wherein the contiguous  
segments are nonoverlapping. In one embodiment the pair of isolated nucleic acid molecules  
is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a  
NA Group 3 molecule. Preferably, the pair amplifies a human NA Group 3 molecule.

30 According to another aspect of the invention a method for treating a subject with a  
disorder characterized by expression of a human cancer associated antigen precursor is  
provided. The method includes the step of administering to the subject an amount of an agent,



which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of (a) a nucleic acid

5 molecule comprising NA group 1 nucleic acid molecules, (b) a nucleic acid molecule comprising NA group 3 nucleic acid molecules, (c) a nucleic acid molecule comprising NA group 17 nucleic acid molecules.

In one embodiment the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of  
10 which enriches selectively in the subject the presence of complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

In another embodiment the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, PP Group 5, PP Group 6,  
15 PP Group 7, PP Group 8, PP Group 9, PP Group 10, PP Group 11, PP Group 12, PP Group 13, PP Group 14, PP Group 15, PP Group 16 and PP Group 17 polypeptides.

In yet another embodiment the disorder is cancer.

According to another aspect the invention is a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the  
20 subject. The method includes the steps of (i) removing an immunoreactive cell containing sample from the subject, (ii) contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor, (iii) introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated  
25 antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from the group of nucleic acid molecules consisting of NA Group 1, NA Group 2, NA Group 3, NA Group 4, NA Group 5, NA Group 6, NA Group 7, NA Group 8, NA Group 9, NA Group 10, NA Group 11, NA Group 12, NA Group  
30 13, NA Group 14, NA Group 15, NA Group 16, and NA Group 17.

In one embodiment the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen. In another embodiment the host cell endogenously

expresses an HLA molecule which binds the human cancer associated antigen.

The invention includes in another aspect a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the subject. The method includes the steps of (I) identifying a nucleic acid molecule expressed by

5 the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule (ii) transfecting a host cell with a nucleic acid selected from the group consisting of (a) the nucleic acid molecule identified, (b) a fragment of the nucleic acid identified which includes a segment coding for a cancer associated antigen, (c) deletions, substitutions or additions to (a) or (b), and (d) degenerates of (a), (b), or (c); (iii) culturing said transfected  
10 host cells to express the transfected nucleic acid molecule, and; (iv) introducing an amount of said host cells or an extract thereof to the subject effective to increase an immune response against the cells of the subject associated with the condition. Preferably, the antigen is a human antigen and the subject is a human.

In one embodiment the method also includes the step of (a) identifying an MHC  
15 molecule which presents a portion of an expression product of the nucleic acid molecule, wherein the host cell expresses the same MHC molecule as identified in (a) and wherein the host cell presents an MHC binding portion of the expression product of the nucleic acid molecule.

In another embodiment the method also includes the step of treating the host cells to  
20 render them non-proliferative.

In yet another embodiment the immune response comprises a B-cell response or a T cell response. Preferably the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human cancer associated  
25 antigen.

In another embodiment the nucleic acid molecule is a NA Group 3 molecule.

Another aspect of the invention is a method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule. The method includes the  
30 step of administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

In one embodiment the antibody is a monoclonal antibody. Preferably the monoclonal antibody is a chimeric antibody or a humanized antibody.

In another aspect the invention is a method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule

5 ~~that is a NA Group 1 nucleic acid molecule. The method involves the step of administering to~~  
a subject at least one of the pharmaceutical compositions of the invention described above in an amount effective to prevent, delay the onset of, or inhibit the condition in the subject. In one embodiment the condition is cancer. In another embodiment the method includes the step of first identifying that the subject expresses in a tissue abnormal amounts of the protein.

10 The invention in another aspect is a method for treating a subject having a condition characterized by expression of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method includes the steps of (I) identifying cells from the subject which express abnormal amounts of the protein; (ii) isolating a sample of the cells; (iii) cultivating the cells, and (iv) introducing the cells to the subject in  
15 an amount effective to provoke an immune response against the cells.

In one embodiment the cells express a protein selected from the group consisting of a PP Group 11 protein, a PP Group 12 protein, a PP Group 13 protein, PP Group 14 protein, a PP Group 15 protein and a PP Group 16 protein. In another embodiment the method includes the step of rendering the cells non-proliferative, prior to introducing them to the subject.

20 In another aspect the invention is a method for treating a pathological cell condition characterized by abnormal expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method includes the step of administering to a subject in need thereof an effective amount of an agent which inhibits the expression or activity of the protein.

25 In one embodiment the agent is an inhibiting antibody which selectively binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody. In another embodiment the agent is an antisense nucleic acid molecule which selectively binds to the nucleic acid molecule which encodes the protein. In yet another important embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

30 The invention includes in another aspect a composition of matter useful in stimulating an immune response to a plurality of a protein encoded by nucleic acid molecules that are NA Group 1 molecules. The composition is a plurality of peptides derived from the amino acid

sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

In one embodiment at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto. In another embodiment the composition of matter

5 includes an adjuvant. In another embodiment the adjuvant is a saponin, GM-CSF, or an interleukin.

According to another aspect the invention is an isolated antibody which selectively binds to a complex of: (I) a peptide derived from a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule and (ii) and an MHC molecule to which binds the peptide to form the  
10 complex, wherein the isolated antibody does not bind to (I) or (ii) alone.

In one embodiment the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody.

The invention also involves the use of the genes, gene products, fragments thereof, agents which bind thereto, and so on in the preparation of medicaments. A particular medicament is for  
15 treating cancer and a more particular medicament is for treating breast cancer, lung cancer, renal cancer, colon cancer, prostate cancer or gastric cancer.

### **Detailed Description of the Invention**

In the above summary and in the ensuing description, lists of sequences are provided.  
20 The lists are meant to embrace each single sequence separately, two or more sequences together where they form a part of the same gene, any combination of two or more sequences which relate to different genes, including and up to the total number on the list, as if each and every combination were separately and specifically enumerated. Likewise, when mentioning fragment size, it is intended that a range embrace the smallest fragment mentioned to the full-length of the  
25 sequence (-1 so that it is a fragment), each and every fragment length intended as if specifically enumerated. Thus, if a fragment could be between 10 and 15 in length, it is explicitly meant to mean 10, 11, 12, 13, 14, or 15 in length.

The summary and the claims mention antigen precursors and antigens. As used in the summary and in the claims, a precursor is substantially the full-length protein encoded by the  
30 coding region of the isolated DNA and the antigen is a peptide which complexes with MHC, preferably HLA, and which participates in the immune response as part of that complex. Such antigens are typically 9 amino acids long, although this may vary slightly.

As used herein, a subject is a human, non-human primate, cow, horse, pig, sheep, goat, dog, cat or rodent. In all embodiments human cancer antigens and human subjects are preferred.

The present invention in one aspect involves the cloning of cDNAs encoding human cancer associated antigen precursors using autologous antisera of subjects having cancer. The

5 sequences of the clones representing genes identified according to the methods described herein are presented in the attached Sequence Listing, and the predicted amino acid sequences of some clones also are presented. Of the foregoing, it can be seen that some of the clones are considered completely novel as no nucleotide or amino acid homologies to coding regions were found in the databases searched. Other clones are novel but have some homology to sequences deposited in  
10 databases (mainly EST sequences). Nevertheless, the entire gene sequence was not previously known. In some cases no function was suspected and in other cases, even if a function was suspected, it was not known that the gene was associated with cancer. In all cases, it was not known or suspected that the gene encoded a cancer antigen which reacted with antibody from autologous sera. Analysis of the clone sequences by comparison to nucleic acid and protein  
15 databases determined that still other of the clones surprisingly are closely related to other previously cloned genes. The sequences of these related genes is also presented in the Sequence Listing. The nature of the foregoing genes as encoding antigens recognized by the immune systems of cancer patients is, of course, unexpected.

The invention thus involves in one aspect cancer associated antigen polypeptides, genes  
20 encoding those polypeptides, functional modifications and variants of the foregoing, useful fragments of the foregoing, as well as diagnostics and therapeutics relating thereto.

Homologs and alleles of the cancer associated antigen nucleic acids of the invention can be identified by conventional techniques. Thus, an aspect of the invention is those nucleic acid sequences which code for cancer associated antigen precursors. Because this application  
25 contains so many sequences, the following chart is provided to identify the various groups of sequences discussed in the claims and in the summary:

#### "Nucleic Acid Sequences"

30 NA Group 1. (a) nucleic acid molecules which hybridize under stringent conditions to a molecule consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences among SEQ ID NOs 1-816 and which code for a cancer associated antigen precursor,

- 14 -

(b) deletions, additions and substitutions which code for a respective cancer associated antigen precursor,

(c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and

5 (d) complements of (a), (b) or (c).

---

NA Group 2. Fragments of NA Group 1, which codes for a polypeptide which, or a portion of which, binds an MHC molecule to form a complex recognized by a an autologous antibody or lymphocyte.

10

NA Group 3. The subset of NA Group 1 where the nucleotide sequence is selected from the group consisting of:

(a) previously unknown human nucleic acids coding for a human cancer associated antigen precursor,

15 (b) deletions, additions and substitutions which code for a respective human cancer associated antigen precursor,

(c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and

(d) complements of (a), (b) or (c).

20 NA Group 4. Fragments of NA Group 3, which code for a polypeptide which, or a portion of which, binds to an MHC molecule to form a complex recognized by an autologous antibody or lymphocyte.

NA Group 5. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human  
25 breast cancer associated antigen precursor.

NA Group 6. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human colon cancer associated antigen precursor.

30 NA Group 7. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human gastric cancer associated antigen precursor.

NA Group 8. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human lung cancer associated antigen precursor.

NA Group 9. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human renal cancer associated antigen precursor.

---

NA Group 10. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human prostate cancer associated antigen precursor.

10 NA Group 11. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human breast cancer associated antigen precursor.

NA Group 12. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human colon cancer associated antigen precursor.

15

NA Group 13. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human gastric cancer associated antigen precursor.

NA Group 14. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human lung cancer associated antigen precursor.

20

NA Group 15. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human renal cancer associated antigen precursor.

25 NA Group 16. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human prostate cancer associated antigen precursor.

NA Group 17. A subset of NA Group 1, comprising human cancer associated antigens that react with allogenic cancer antisera.

30

#### Polypeptide Sequences

PP Group 1. Polypeptides encoded by NA Group 1.

- 16 -

- PP Group 2. Polypeptides encoded by NA Group 2  
PP Group 3. Polypeptides encoded by NA Group 3.  
PP Group 4. Polypeptides encoded by NA Group 4.  
PP Group 5. Polypeptides encoded by NA Group 5.
- 
- 5 PP Group 6. Polypeptides encoded by NA Group 6.  
PP Group 7. Polypeptides encoded by NA Group 7.  
PP Group 8. Polypeptides encoded by NA Group 8.  
PP Group 9. Polypeptides encoded by NA Group 9.  
PP Group 10. Polypeptides encoded by NA Group 10.  
10 PP Group 11. Polypeptides encoded by NA Group 11.  
PP Group 12. Polypeptides encoded by NA Group 12.  
PP Group 13. Polypeptides encoded by NA Group 13.  
PP Group 14. Polypeptides encoded by NA Group 14.  
PP Group 15. Polypeptides encoded by NA Group 15.  
15 PP Group 16. Polypeptides encoded by NA Group 16.  
PP Group 17. Polypeptides encoded by NA Group 17.

The term "stringent conditions" as used herein refers to parameters with which the art is familiar. Nucleic acid hybridization parameters may be found in references which compile such  
20 methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds., Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989, or *Current Protocols in Molecular Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons, Inc., New York. More specifically, stringent conditions, as used herein, refers, for example, to hybridization at  
25 65°C in hybridization buffer (3.5 x SSC, 0.02% Ficoll, 0.02% polyvinyl pyrrolidone, 0.02% Bovine Serum Albumin, 2.5mM NaH<sub>2</sub>PO<sub>4</sub>(pH7), 0.5% SDS, 2mM EDTA). SSC is 0.15M sodium chloride/0.15M sodium citrate, pH7; SDS is sodium dodecyl sulphate; and EDTA is ethylenediaminetetracetic acid. After hybridization, the membrane upon which the DNA is transferred is washed, for example, in 2 x SSC at room temperature and then at 0.1 - 0.5 x SSC/0.1 x SDS at temperatures up to 68°C.

30 There are other conditions, reagents, and so forth which can be used, which result in a similar degree of stringency. The skilled artisan will be familiar with such conditions, and thus they are not given here. It will be understood, however, that the skilled artisan will be able to



manipulate the conditions in a manner to permit the clear identification of homologs and alleles of cancer associated antigen nucleic acids of the invention (e.g., by using lower stringency conditions). The skilled artisan also is familiar with the methodology for screening cells and libraries for expression of such molecules which then are routinely isolated, followed by  
5 isolation of the pertinent nucleic acid molecule and sequencing.

---

In general homologs and alleles typically will share at least 40% nucleotide identity and/or at least 50% amino acid identity to the sequences of breast cancer associated antigen nucleic acid and polypeptides, respectively, in some instances will share at least 50% nucleotide identity and/or at least 65% amino acid identity and in still other instances will share at least 60%  
10 nucleotide identity and/or at least 75% amino acid identity. The homology can be calculated using various, publicly available software tools developed by NCBI (Bethesda, Maryland) that can be obtained through the internet (<ftp://ncbi.nlm.nih.gov/pub/>). Exemplary tools include the BLAST system available at <http://www.ncbi.nlm.nih.gov>. Pairwise and ClustalW alignments (BLOSUM30 matrix setting) as well as Kyte-Doolittle hydropathic analysis can be obtained  
15 using the MacVector sequence analysis software (Oxford Molecular Group). Watson-Crick complements of the foregoing nucleic acids also are embraced by the invention.

In screening for cancer associated antigen genes, a Southern blot may be performed using the foregoing conditions, together with a radioactive probe. After washing the membrane to which the DNA is finally transferred, the membrane can be placed against X-ray film to detect  
20 the radioactive signal. In screening for the expression of cancer associated antigen nucleic acids, Northern blot hybridizations using the foregoing conditions (see also the Examples) can be performed on samples taken from breast cancer patients or subjects suspected of having a condition characterized by expression of breast cancer associated antigen genes. Amplification protocols such as polymerase chain reaction using primers which hybridize to the sequences  
25 presented also can be used for detection of the cancer associated antigen genes or expression thereof.

The breast cancer associated genes correspond to SEQ ID NOs. 1-40 and 66. The preferred breast cancer associated antigens for the methods of diagnosis disclosed herein are those set forth in SEQ ID NOs:[31, 33 and 34], which were found to react with allogeneic breast  
30 cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The colon cancer associated genes correspond to SEQ ID Nos. 544-586, even numbers

only. The preferred colon cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic colon cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The gastric cancer associated genes correspond to SEQ ID NOs 176-436 and 588-674.

---

5 The preferred gastric cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic gastric cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The renal cancer associated genes correspond to SEQ ID Nos. 89-169, odd numbers only, and 170, 172, and 174. The preferred renal cancer associated antigens for the methods of  
10 diagnosis disclosed herein are those, which were found to react with allogeneic renal cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The lung cancer associated genes correspond to SEQ ID Nos. 689, 691, 692, 694, 696-707, 709, 711, and 712. The preferred lung cancer associated antigens for the methods of  
15 diagnosis disclosed herein are those, which were found to react with allogeneic lung cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The prostate cancer associated genes correspond to SEQ ID NOs 437-543. The preferred prostate cancer associated antigens for the methods of diagnosis disclosed herein are those,  
20 which were found to react with allogeneic prostate cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The invention also includes degenerate nucleic acids which include alternative codons to those present in the native materials. For example, serine residues are encoded by the codons TCA, AGT, TCC, TCG, TCT and AGC. Each of the six codons is equivalent for the purposes of  
25 encoding a serine residue. Thus, it will be apparent to one of ordinary skill in the art that any of the serine-encoding nucleotide triplets may be employed to direct the protein synthesis apparatus, *in vitro* or *in vivo*, to incorporate a serine residue into an elongating breast cancer associated antigen polypeptide. Similarly, nucleotide sequence triplets which encode other amino acid residues include, but are not limited to: CCA, CCC, CCG and CCT (proline codons); CGA,  
30 CGC, CGG, CGT, AGA and AGG (arginine codons); ACA, ACC, ACG and ACT (threonine codons); AAC and AAT (asparagine codons); and ATA, ATC and ATT (isoleucine codons). Other amino acid residues may be encoded similarly by multiple nucleotide sequences. Thus,

the invention embraces degenerate nucleic acids that differ from the biologically isolated nucleic acids in codon sequence due to the degeneracy of the genetic code.

The invention also provides isolated unique fragments of cancer associated antigen nucleic acid sequences or complements thereof. A unique fragment is one that is a 'signature' for the larger

---

5 nucleic acid. It, for example, is long enough to assure that its precise sequence is not found in molecules within the human genome outside of the cancer associated antigen nucleic acids defined above (and human alleles). Those of ordinary skill in the art may apply no more than routine procedures to determine if a fragment is unique within the human genome. Unique fragments, however, exclude fragments completely composed of the nucleotide sequences of any of GenBank  
10 accession numbers listed in Table 1 or other previously published sequences as of the filing date of the priority documents for sequences listed in a respective priority document or the filing date of this application for sequences listed for the first time in this application which overlap the sequences of the invention.

A fragment which is completely composed of the sequence described in the foregoing  
15 GenBank deposits is one which does not include any of the nucleotides unique to the sequences of the invention. Thus, a unique fragment must contain a nucleotide sequence other than the exact sequence of those in GenBank or fragments thereof. The difference may be an addition, deletion or substitution with respect to the GenBank sequence or it may be a sequence wholly separate from the GenBank sequence.

20 Unique fragments can be used as probes in Southern and Northern blot assays to identify such nucleic acids, or can be used in amplification assays such as those employing PCR. As known to those skilled in the art, large probes such as 200, 250, 300 or more nucleotides are preferred for certain uses such as Southern and Northern blots, while smaller fragments will be preferred for uses such as PCR. Unique fragments also can be used to produce fusion proteins for generating  
25 antibodies or determining binding of the polypeptide fragments, or for generating immunoassay components. Likewise, unique fragments can be employed to produce nonfused fragments of the cancer associated antigen polypeptides, useful, for example, in the preparation of antibodies, and in immunoassays. Unique fragments further can be used as antisense molecules to inhibit the expression of cancer associated antigen nucleic acids and polypeptides, particularly for therapeutic  
30 purposes as described in greater detail below.

As will be recognized by those skilled in the art, the size of the unique fragment will depend upon its conservancy in the genetic code. Thus, some regions of cancer associated antigen sequences and complements thereof will require longer segments to be unique while others will require only short segments, typically between 12 and 32 nucleotides (e.g. 12, 13, 14, 15, 16, 17, 18,

5 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 32 or more bases long, up to the entire length of the disclosed sequence. As mentioned above, this disclosure intends to embrace each and every fragment of each sequence, beginning at the first nucleotide, the second nucleotide and so on, up to 8 nucleotides short of the end, and ending anywhere from nucleotide number 8, 9, 10 and so on for each sequence, up to the very last nucleotide, (provided the sequence is unique as described above).

10 Virtually any segment of the polypeptide coding region of novel cancer associated antigen nucleic acids, or complements thereof, that is 18 or more nucleotides in length will be unique. Those skilled in the art are well versed in methods for selecting such sequences, typically on the basis of the ability of the unique fragment to selectively distinguish the sequence of interest from other sequences in the human genome of the fragment to those on known databases typically is all  
15 that is necessary, although *in vitro* confirmatory hybridization and sequencing analysis may be performed. Especially preferred include nucleic acids encoding a series of epitopes, known as "polytopes". The epitopes can be arranged in sequential or overlapping fashion (*see, e.g.,* Thomson et al., *Proc. Natl. Acad. Sci. USA* 92:5845-5849, 1995; Gilbert et al., *Nature Biotechnol.* 15:1280-1284, 1997), with or without the natural flanking sequences, and can be separated by unrelated  
20 linker sequences if desired. The polytope is processed to generated individual epitopes which are recognized by the immune system for generation of immune responses.

Thus, for example, peptides derived from a polypeptide having an amino acid sequence encoded by one of the nucleic acid disclosed herein, and which are presented by MHC molecules and recognized by CTL or T helper lymphocytes, can be combined with peptides from one or more  
25 other cancer associated antigens (e.g. by preparation of hybrid nucleic acids or polypeptides) to form "polytopes". The two or more peptides (or nucleic acids encoding the peptides) can be selected from those described herein, or they can include one or more peptides of previously known cancer associated antigens. Exemplary cancer associated peptide antigens that can be administered to induce or enhance an immune response are derived from tumor associated genes and encoded  
30 proteins including MAGE-1, MAGE-2, MAGE-3, MAGE-4, MAGE-5, MAGE-6, MAGE-7,

- 21 -

MAGE-8, MAGE-9, MAGE-10, MAGE-11, GAGE-1, GAGE-2, GAGE-3, GAGE-4, GAGE-5, GAGE-6, BAGE-1, RAGE-1, LB33/MUM-1, PRAME, NAG, MAGE-Xp2, MAGE-Xp3, MAGE-Xp4, tyrosinase, brain glycogen phosphorylase, Melan-A, and MAGE-C1. See, for example, PCT application publication no. WO96/10577. Other examples will be known to one of ordinary skill in

5 the art (for example, see Coulie, *Stem Cells* 13:393-403, 1995), and can be used in the invention in a like manner as those disclosed herein. One of ordinary skill in the art can prepare polypeptides comprising one or more peptides and one or more of the foregoing cancer associated peptides, or nucleic acids encoding such polypeptides, according to standard procedures of molecular biology.

Thus polytopes are groups of two or more potentially immunogenic or immune response  
10 stimulating peptides which can be joined together in various arrangements (e.g. concatenated, overlapping). The polytope (or nucleic acid encoding the polytope) can be administered in a standard immunization protocol, e.g. to animals, to test the effectiveness of the polytope in stimulating, enhancing and/or provoking an immune response.

The peptides can be joined together directly or via the use of flanking sequences to form  
15 polytopes, and the use of polytopes as vaccines is well known in the art (see, e.g., Thomson et al., *Proc. Acad. Natl. Acad. Sci USA* 92(13):5845-5849, 1995; Gilbert et al., *Nature Biotechnol.* 15(12):1280-1284, 1997; Thomson et al., *J. Immunol.* 157(2):822-826, 1996; Tam et al., *J. Exp. Med.* 171(1):299-306, 1990).for example, Tam showed that polytopes consisting of both MHC class I and class II binding epitopes successfully generated antibody and protective immunity in a mouse  
20 model. Tam also demonstrated that polytopes comprising "strings" of epitopes are processed to yield individual epitopes which are presented by MHC molecules and recognized by CTLs. Thus polytopes containing various numbers and combinations of epitopes can be prepared and tested for recognition by CTLs and for efficacy in increasing an immune response.

It is known that tumors express a set of tumor antigens, of which only certain subsets may be  
25 expressed in the tumor of any given patient (for examples of this, see the Examples below). Polytopes can be prepared which correspond to the different combination of epitopes representing the subset of tumor rejection antigens expressed in a particular patient. Polytopes also can be prepared to reflect a broader spectrum of tumor rejection antigens known to be expressed by a tumor type. Polytopes can be introduced to a patient in need of such treatment as polypeptide structures, or  
30 via the use of nucleic acid delivery systems known in the art (see, e.g., Allsopp et al., *Eur. J.*

*Immunol.* 26(8):1951-1959, 1996). Adenovirus, pox virus, Ty-virus like particles, adeno-associated virus, plasmids, bacteria, etc. can be used in such delivery. One can test the polytope delivery systems in mouse models to determine efficacy of the delivery system. The systems also can be tested in human clinical trials.

5 In instances in which a human HLA class I molecule presents tumor rejection antigens derived from cancer associated nucleic acids, the expression vector may also include a nucleic acid sequence coding for the HLA molecule that presents any particular tumor rejection antigen derived from these nucleic acids and polypeptides. Alternatively, the nucleic acid sequence coding for such a HLA molecule can be contained within a separate expression vector. In a situation where the  
10 vector contains both coding sequences, the single vector can be used to transfect a cell which does not normally express either one. Where the coding sequences for a cancer associated antigen precursor and the HLA molecule which presents it are contained on separate expression vectors, the expression vectors can be cotransfected. The cancer associated antigen precursor coding sequence may be used alone, when, e.g. the host cell already expresses a HLA molecule which presents a  
15 cancer associated antigen derived from precursor molecules. Of course, there is no limit on the particular host cell which can be used. As the vectors which contain the two coding sequences may be used in any antigen-presenting cells if desired, and the gene for cancer associated antigen precursor can be used in host cells which do not express a HLA molecule which presents a cancer associated antigen. Further, cell-free transcription systems may be used in lieu of cells.

20 As mentioned above, the invention embraces antisense oligonucleotides that selectively bind to a nucleic acid molecule encoding a cancer associated antigen polypeptide, to reduce the expression of cancer associated antigens. This is desirable in virtually any medical condition wherein a reduction of expression of cancer associated antigens is desirable, e.g., in the treatment of cancer. This is also useful for *in vitro* or *in vivo* testing of the effects of a reduction of expression of  
25 one or more cancer associated antigens.

As used herein, the term "antisense oligonucleotide" or "antisense" describes an oligonucleotide that is an oligoribonucleotide, oligodeoxyribonucleotide, modified oligoribonucleotide, or modified oligodeoxyribonucleotide which hybridizes under physiological conditions to DNA comprising a particular gene or to an mRNA transcript of that gene and, thereby,  
30 inhibits the transcription of that gene and/or the translation of that mRNA. The antisense molecules

are designed so as to interfere with transcription or translation of a target gene upon hybridization with the target gene or transcript. Those skilled in the art will recognize that the exact length of the antisense oligonucleotide and its degree of complementarity with its target will depend upon the specific target selected, including the sequence of the target and the particular bases which comprise

- 
- 5 that sequence. It is preferred that the antisense oligonucleotide be constructed and arranged so as to bind selectively with the target under physiological conditions, i.e., to hybridize substantially more to the target sequence than to any other sequence in the target cell under physiological conditions. Based upon the sequences of nucleic acids encoding breast cancer associated antigen, or upon allelic or homologous genomic and/or cDNA sequences, one of skill in the art can easily choose and
- 10 synthesize any of a number of appropriate antisense molecules for use in accordance with the present invention. In order to be sufficiently selective and potent for inhibition, such antisense oligonucleotides should comprise at least 10 and, more preferably, at least 15 consecutive bases which are complementary to the target, although in certain cases modified oligonucleotides as short as 7 bases in length have been used successfully as antisense oligonucleotides (Wagner et al.,
- 15 *Nature Biotechnol.* 14:840-844, 1996). Most preferably, the antisense oligonucleotides comprise a complementary sequence of 20-30 bases. Although oligonucleotides may be chosen which are antisense to any region of the gene or mRNA transcripts, in preferred embodiments the antisense oligonucleotides correspond to N-terminal or 5' upstream sites such as translation initiation, transcription initiation or promoter sites. In addition, 3'-untranslated regions may be targeted.
- 20 Targeting to mRNA splicing sites has also been used in the art but may be less preferred if alternative mRNA splicing occurs. In addition, the antisense is targeted, preferably, to sites in which mRNA secondary structure is not expected (see, e.g., Sainio et al., *Cell Mol. Neurobiol.* 14(5):439-457, 1994) and at which proteins are not expected to bind. Finally, although the listed sequences are cDNA sequences, one of ordinary skill in the art may easily derive the genomic DNA corresponding
- 25 to the cDNA of a cancer associated antigen. Thus, the present invention also provides for antisense oligonucleotides which are complementary to the genomic DNA corresponding to nucleic acids encoding breast cancer associated antigens. Similarly, antisense to allelic or homologous cDNAs and genomic DNAs are enabled without undue experimentation.

In one set of embodiments, the antisense oligonucleotides of the invention may be composed

30 of "natural" deoxyribonucleotides, ribonucleotides, or any combination thereof. That is, the 5' end

of one native nucleotide and the 3' end of another native nucleotide may be covalently linked, as in natural systems, via a phosphodiester internucleoside linkage. These oligonucleotides may be prepared by art recognized methods which may be carried out manually or by an automated synthesizer. They also may be produced recombinantly by vectors.

5 In preferred embodiments, however, the antisense oligonucleotides of the invention also may include "modified" oligonucleotides. That is, the oligonucleotides may be modified in a number of ways which do not prevent them from hybridizing to their target but which enhance their stability or targeting or which otherwise enhance their therapeutic effectiveness.

The term "modified oligonucleotide" as used herein describes an oligonucleotide in which  
10 (1) at least two of its nucleotides are covalently linked via a synthetic internucleoside linkage (i.e., a linkage other than a phosphodiester linkage between the 5' end of one nucleotide and the 3' end of another nucleotide) and/or (2) a chemical group not normally associated with nucleic acids has been covalently attached to the oligonucleotide. Preferred synthetic internucleoside linkages are phosphorothioates, alkylphosphonates, phosphorodithioates, phosphate esters,  
15 alkylphosphonothioates, phosphoramidates, carbamates, carbonates, phosphate triesters, acetamidates, carboxymethyl esters and peptides.

The term "modified oligonucleotide" also encompasses oligonucleotides with a covalently modified base and/or sugar. For example, modified oligonucleotides include oligonucleotides having backbone sugars which are covalently attached to low molecular weight organic groups other  
20 than a hydroxyl group at the 3' position and other than a phosphate group at the 5' position. Thus modified oligonucleotides may include a 2'-O-alkylated ribose group. In addition, modified oligonucleotides may include sugars such as arabinose instead of ribose. The present invention, thus, contemplates pharmaceutical preparations containing modified antisense molecules that are complementary to and hybridizable with, under physiological conditions, nucleic acids encoding  
25 breast cancer associated antigen polypeptides, together with pharmaceutically acceptable carriers.

Antisense oligonucleotides may be administered as part of a pharmaceutical composition. Such a pharmaceutical composition may include the antisense oligonucleotides in combination with any standard physiologically and/or pharmaceutically acceptable carriers which are known in the art. The compositions should be sterile and contain a therapeutically effective amount of the antisense  
30 oligonucleotides in a unit of weight or volume suitable for administration to a patient. The term



- 25 -

“pharmaceutically acceptable” means a non-toxic material that does not interfere with the effectiveness of the biological activity of the active ingredients. The term “physiologically acceptable” refers to a non-toxic material that is compatible with a biological system such as a cell, cell culture, tissue, or organism. The characteristics of the carrier will depend on the route of

5 administration. Physiologically and pharmaceutically acceptable carriers include diluents, fillers, salts, buffers, stabilizers, solubilizers, and other materials which are well known in the art, as further described below.

As used herein, a “vector” may be any of a number of nucleic acids into which a desired sequence may be inserted by restriction and ligation for transport between different genetic  
10 environments or for expression in a host cell. Vectors are typically composed of DNA although RNA vectors are also available. Vectors include, but are not limited to, plasmids, phagemids and virus genomes. A cloning vector is one which is able to replicate in a host cell, and which is further characterized by one or more endonuclease restriction sites at which the vector may be cut in a determinable fashion and into which a desired DNA sequence may be ligated such that the new  
15 recombinant vector retains its ability to replicate in the host cell. In the case of plasmids, replication of the desired sequence may occur many times as the plasmid increases in copy number within the host bacterium or just a single time per host before the host reproduces by mitosis. In the case of phage, replication may occur actively during a lytic phase or passively during a lysogenic phase. An expression vector is one into which a desired DNA sequence may be inserted by restriction and  
20 ligation such that it is operably joined to regulatory sequences and may be expressed as an RNA transcript. Vectors may further contain one or more marker sequences suitable for use in the identification of cells which have or have not been transformed or transfected with the vector. Markers include, for example, genes encoding proteins which increase or decrease either resistance or sensitivity to antibiotics or other compounds, genes which encode enzymes whose activities are  
25 detectable by standard assays known in the art (e.g.,  $\beta$ -galactosidase or alkaline phosphatase), and genes which visibly affect the phenotype of transformed or transfected cells, hosts, colonies or plaques (e.g., green fluorescent protein). Preferred vectors are those capable of autonomous replication and expression of the structural gene products present in the DNA segments to which they are operably joined.

30 As used herein, a coding sequence and regulatory sequences are said to be “operably” joined

when they are covalently linked in such a way as to place the expression or transcription of the coding sequence under the influence or control of the regulatory sequences. If it is desired that the coding sequences be translated into a functional protein, two DNA sequences are said to be operably joined if induction of a promoter in the 5' regulatory sequences results in the transcription of the

5 coding sequence and if the nature of the linkage between the two DNA sequences does not (1) result in the introduction of a frame-shift mutation, (2) interfere with the ability of the promoter region to direct the transcription of the coding sequences, or (3) interfere with the ability of the corresponding RNA transcript to be translated into a protein. Thus, a promoter region would be operably joined to a coding sequence if the promoter region were capable of effecting transcription of that DNA  
10 sequence such that the resulting transcript might be translated into the desired protein or polypeptide.

The precise nature of the regulatory sequences needed for gene expression may vary between species or cell types, but shall in general include, as necessary, 5' non-transcribed and 5' non-translated sequences involved with the initiation of transcription and translation respectively, such as  
15 a TATA box, capping sequence, CAAT sequence, and the like. Especially, such 5' non-transcribed regulatory sequences will include a promoter region which includes a promoter sequence for transcriptional control of the operably joined gene. Regulatory sequences may also include enhancer sequences or upstream activator sequences as desired. The vectors of the invention may optionally include 5' leader or signal sequences. The choice and design of an appropriate vector is within the  
20 ability and discretion of one of ordinary skill in the art.

Expression vectors containing all the necessary elements for expression are commercially available and known to those skilled in the art. See, e.g., Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989. Cells are genetically engineered by the introduction into the cells of heterologous DNA (RNA) encoding a  
25 breast cancer associated antigen polypeptide or fragment or variant thereof. That heterologous DNA (RNA) is placed under operable control of transcriptional elements to permit the expression of the heterologous DNA in the host cell.

Preferred systems for mRNA expression in mammalian cells are those such as pRc/CMV (available from Invitrogen, Carlsbad, CA) that contain a selectable marker such as a gene that  
30 confers G418 resistance (which facilitates the selection of stably transfected cell lines) and the

human cytomegalovirus (CMV) enhancer-promoter sequences. Additionally, suitable for expression in primate or canine cell lines is the pCEP4 vector (Invitrogen), which contains an Epstein Barr Virus (EBV) origin of replication, facilitating the maintenance of plasmid as a multicopy extrachromosomal element. Another expression vector is the pEF-BOS plasmid containing the

5 promoter of polypeptide Elongation Factor 1 $\alpha$ , which stimulates efficiently transcription *in vitro*. The plasmid is described by Mishizuma and Nagata (*Nuc. Acids Res.* 18:5322, 1990), and its use in transfection experiments is disclosed by, for example, Demoulin (*Mol. Cell. Biol.* 16:4710-4716, 1996). Still another preferred expression vector is an adenovirus, described by Stratford-Perricaudet, which is defective for E1 and E3 proteins (*J. Clin. Invest.* 90:626-630, 1992). The use  
10 of the adenovirus as an Adeno.P1A recombinant for the expression of an antigen is disclosed by Warnier et al., in intradermal injection in mice for immunization against P1A (*Int. J. Cancer*, 67:303-310, 1996). Additional vectors for delivery of nucleic acid are provided below.

The invention also embraces so-called expression kits, which allow the artisan to prepare a desired expression vector or vectors. Such expression kits include at least separate portions of a  
15 vector and one or more of the previously discussed breast cancer associated antigen nucleic acid molecules. Other components may be added, as desired, as long as the previously mentioned nucleic acid molecules, which are required, are included. The invention also includes kits for amplification of a breast cancer associated antigen nucleic acid, including at least one pair of amplification primers which hybridize to a breast cancer associated antigen nucleic acid. The  
20 primers preferably are 12-32 nucleotides in length and are non-overlapping to prevent formation of "primer-dimers". One of the primers will hybridize to one strand of the breast cancer associated antigen nucleic acid and the second primer will hybridize to the complementary strand of the breast cancer associated antigen nucleic acid, in an arrangement which permits amplification of the breast cancer associated antigen nucleic acid. Selection of appropriate primer pairs is standard in the art.  
25 For example, the selection can be made with assistance of a computer program designed for such a purpose, optionally followed by testing the primers for amplification specificity and efficiency.

The invention also permits the construction of cancer associated antigen gene "knock-outs" in cells and in animals, providing materials for studying certain aspects of cancer and immune system responses to cancer.

30 The invention also provides isolated polypeptides (including whole proteins and partial

proteins) encoded by the foregoing cancer associated antigen nucleic acids. Such polypeptides are useful, for example, alone or as fusion proteins to generate antibodies, as components of an immunoassay or diagnostic assay or as therapeutics. Cancer associated antigen polypeptides can be isolated from biological samples including tissue or cell homogenates, and can also be expressed

5 recombinantly in a variety of prokaryotic and eukaryotic expression systems by constructing an expression vector appropriate to the expression system, introducing the expression vector into the expression system, and isolating the recombinantly expressed protein. Short polypeptides, including antigenic peptides (such as are presented by MHC molecules on the surface of a cell for immune recognition) also can be synthesized chemically using well-established methods of peptide synthesis.

10 A unique fragment of a cancer associated antigen polypeptide, in general, has the features and characteristics of unique fragments as discussed above in connection with nucleic acids. As will be recognized by those skilled in the art, the size of the unique fragment will depend upon factors such as whether the fragment constitutes a portion of a conserved protein domain. Thus, some regions of breast cancer associated antigens will require longer segments to be unique while others  
15 will require only short segments, typically between 5 and 12 amino acids (e.g. 5, 6, 7, 8, 9, 10, 11 or 12 or more, including each integer up to the full length, amino acids long).

Unique fragments of a polypeptide preferably are those fragments which retain a distinct functional capability of the polypeptide. Functional capabilities which can be retained in a unique fragment of a polypeptide include interaction with antibodies, interaction with other polypeptides or  
20 fragments thereof, selective binding of nucleic acids or proteins, and enzymatic activity. One important activity is the ability to act as a signature for identifying the polypeptide. Another is the ability to complex with HLA and to provoke in a human an immune response. Those skilled in the art are well versed in methods for selecting unique amino acid sequences, typically on the basis of the ability of the unique fragment to selectively distinguish the sequence of interest from non-family  
25 members. A comparison of the sequence of the fragment to those on known databases typically is all that is necessary.

The invention embraces variants of the cancer associated antigen polypeptides described above. As used herein, a "variant" of a cancer associated antigen polypeptide is a polypeptide which contains one or more modifications to the primary amino acid sequence of a cancer associated  
30 antigen polypeptide. Modifications which create a cancer associated antigen variant can be made to

a cancer associated antigen polypeptide 1) to reduce or eliminate an activity of a cancer associated antigen polypeptide; 2) to enhance a property of a cancer associated antigen polypeptide, such as protein stability in an expression system or the stability of protein-protein binding; 3) to provide a novel activity or property to a cancer associated antigen polypeptide, such as addition of an

5 antigenic epitope or addition of a detectable moiety; or 4) to provide equivalent or better binding to an HLA molecule. Modifications to a cancer associated antigen polypeptide are typically made to the nucleic acid which encodes the cancer associated antigen polypeptide, and can include deletions, point mutations, truncations, amino acid substitutions and additions of amino acids or non-amino acid moieties. Alternatively, modifications can be made directly to the polypeptide, such as by  
10 cleavage, addition of a linker molecule, addition of a detectable moiety, such as biotin, addition of a fatty acid, and the like. Modifications also embrace fusion proteins comprising all or part of the cancer associated antigen amino acid sequence. One of skill in the art will be familiar with methods for predicting the effect on protein conformation of a change in protein sequence, and can thus "design" a variant cancer associated antigen polypeptide according to known methods. One  
15 example of such a method is described by Dahiyat and Mayo in *Science* 278:82-87, 1997, whereby proteins can be designed *de novo*. The method can be applied to a known protein to vary a only a portion of the polypeptide sequence. By applying the computational methods of Dahiyat and Mayo, specific variants of a cancer associated antigen polypeptide can be proposed and tested to determine whether the variant retains a desired conformation.

20 In general, variants include cancer associated antigen polypeptides which are modified specifically to alter a feature of the polypeptide unrelated to its desired physiological activity. For example, cysteine residues can be substituted or deleted to prevent unwanted disulfide linkages. Similarly, certain amino acids can be changed to enhance expression of a breast cancer associated antigen polypeptide by eliminating proteolysis by proteases in an expression system (e.g., dibasic  
25 amino acid residues in yeast expression systems in which KEX2 protease activity is present).

Mutations of a nucleic acid which encode a cancer associated antigen polypeptide preferably preserve the amino acid reading frame of the coding sequence, and preferably do not create regions in the nucleic acid which are likely to hybridize to form secondary structures, such a hairpins or loops, which can be deleterious to expression of the variant polypeptide.

30 Mutations can be made by selecting an amino acid substitution, or by random mutagenesis of

a selected site in a nucleic acid which encodes the polypeptide. Variant polypeptides are then expressed and tested for one or more activities to determine which mutation provides a variant polypeptide with the desired properties. Further mutations can be made to variants (or to non-variant cancer associated antigen polypeptides) which are silent as to the amino acid sequence of the

5 polypeptide, but which provide preferred codons for translation in a particular host. The preferred codons for translation of a nucleic acid in, e.g., *E. coli*, are well known to those of ordinary skill in the art. Still other mutations can be made to the noncoding sequences of a cancer associated antigen gene or cDNA clone to enhance expression of the polypeptide. The activity of variants of cancer associated antigen polypeptides can be tested by cloning the gene encoding the variant cancer  
10 associated antigen polypeptide into a bacterial or mammalian expression vector, introducing the vector into an appropriate host cell, expressing the variant cancer associated antigen polypeptide, and testing for a functional capability of the cancer associated antigen polypeptides as disclosed herein. For example, the variant cancer associated antigen polypeptide can be tested for reaction with autologous or allogeneic sera as disclosed in the Examples. Preparation of other variant  
15 polypeptides may favor testing of other activities, as will be known to one of ordinary skill in the art.

The skilled artisan will also realize that conservative amino acid substitutions may be made in cancer associated antigen polypeptides to provide functionally equivalent variants of the foregoing polypeptides, i.e., the variants retain the functional capabilities of the cancer associated antigen polypeptides. As used herein, a "conservative amino acid substitution" refers to an amino  
20 acid substitution which does not alter the relative charge or size characteristics of the protein in which the amino acid substitution is made. Variants can be prepared according to methods for altering polypeptide sequence known to one of ordinary skill in the art such as are found in references which compile such methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds., Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor,  
25 New York, 1989, or *Current Protocols in Molecular Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons, Inc., New York. Exemplary functionally equivalent variants of the cancer associated antigen polypeptides include conservative amino acid substitutions of in the amino acid sequences of SEQ ID proteins disclosed herein. Conservative substitutions of amino acids include substitutions made amongst amino acids within the following groups: (a) M, I, L, V; (b) F, Y, W; (c)  
30 K, R, H; (d) A, G; (e) S, T; (f) Q, N; and (g) E, D.

For example, upon determining that a peptide derived from a cancer associated antigen polypeptide is presented by an MHC molecule and recognized by CTLs (e.g., as described in the Examples), one can make conservative amino acid substitutions to the amino acid sequence of the peptide, particularly at residues which are thought not to be direct contact points with the MHC

5 molecule. For example, methods for identifying functional variants of HLA class II binding peptides are provided in a published PCT application of Strominger and Wucherpfennig (PCT/US96/03182). Peptides bearing one or more amino acid substitutions also can be tested for concordance with known HLA/MHC motifs prior to synthesis using, e.g. the computer program described by D'Amato and Drijfhout (D'Amato et al., *Human Immunol.* 43:13-18, 1995; Drijfhout  
10 et al., *Human Immunol.* 43:1-12, 1995). The substituted peptides can then be tested for binding to the MHC molecule and recognition by CTLs when bound to MHC. These variants can be tested for improved stability and are useful, *inter alia*, in vaccine compositions.

Conservative amino-acid substitutions in the amino acid sequence of cancer associated antigen polypeptides to produce functionally equivalent variants of cancer associated antigen  
15 polypeptides typically are made by alteration of a nucleic acid encoding a cancer associated antigen polypeptide. Such substitutions can be made by a variety of methods known to one of ordinary skill in the art. For example, amino acid substitutions may be made by PCR-directed mutation, site-directed mutagenesis according to the method of Kunkel (Kunkel, *Proc. Nat. Acad. Sci. U.S.A.* 82: 488-492, 1985), or by chemical synthesis of a gene encoding a cancer associated antigen  
20 polypeptide. Where amino acid substitutions are made to a small unique fragment of a cancer associated antigen polypeptide, such as an antigenic epitope recognized by autologous or allogeneic sera or cytolytic T lymphocytes, the substitutions can be made by directly synthesizing the peptide. The activity of functionally equivalent fragments of cancer associated antigen polypeptides can be tested by cloning the gene encoding the altered cancer associated antigen polypeptide into a bacterial  
25 or mammalian expression vector, introducing the vector into an appropriate host cell, expressing the altered cancer associated antigen polypeptide, and testing for a functional capability of the cancer associated antigen polypeptides as disclosed herein. Peptides which are chemically synthesized can be tested directly for function, e.g., for binding to antisera recognizing associated antigens.

The invention as described herein has a number of uses, some of which are described  
30 elsewhere herein. First, the invention permits isolation of the cancer associated antigen protein

molecules. A variety of methodologies well-known to the skilled practitioner can be utilized to obtain isolated cancer associated antigen molecules. The polypeptide may be purified from cells which naturally produce the polypeptide by chromatographic means or immunological recognition. Alternatively, an expression vector may be introduced into cells to cause production of the

- 
- 5 polypeptide. In another method, mRNA transcripts may be microinjected or otherwise introduced into cells to cause production of the encoded polypeptide. Translation of mRNA in cell-free extracts such as the reticulocyte lysate system also may be used to produce polypeptide. Those skilled in the art also can readily follow known methods for isolating cancer associated antigen polypeptides. These include, but are not limited to, immunochromatography, HPLC, size-exclusion  
10 chromatography, ion-exchange chromatography and immune-affinity chromatography.

The isolation and identification of cancer associated antigen genes also makes it possible for the artisan to diagnose a disorder characterized by expression of cancer associated antigens. These methods involve determining expression of one or more cancer associated antigen nucleic acids, and/or encoded cancer associated antigen polypeptides and/or peptides derived therefrom. In the  
15 former situation, such determinations can be carried out via any standard nucleic acid determination assay, including the polymerase chain reaction, or assaying with labeled hybridization probes. In the latter situation, such determinations can be carried out by screening patient antisera for recognition of the polypeptide.

The invention also makes it possible isolate proteins which bind to cancer associated  
20 antigens as disclosed herein, including antibodies and cellular binding partners of the cancer associated antigens. Additional uses are described further herein.

The invention also provides, in certain embodiments, "dominant negative" polypeptides derived from cancer associated antigen polypeptides. A dominant negative polypeptide is an inactive variant of a protein, which, by interacting with the cellular machinery, displaces an active  
25 protein from its interaction with the cellular machinery or competes with the active protein, thereby reducing the effect of the active protein. For example, a dominant negative receptor which binds a ligand but does not transmit a signal in response to binding of the ligand can reduce the biological effect of expression of the ligand. Likewise, a dominant negative catalytically-inactive kinase which interacts normally with target proteins but does not phosphorylate the target proteins can reduce  
30 phosphorylation of the target proteins in response to a cellular signal. Similarly, a dominant



negative transcription factor which binds to a promoter site in the control region of a gene but does not increase gene transcription can reduce the effect of a normal transcription factor by occupying promoter binding sites without increasing transcription.

The end result of the expression of a dominant negative polypeptide in a cell is a reduction in

5 function of active proteins. One of ordinary skill in the art can assess the potential for a dominant negative variant of a protein, and using standard mutagenesis techniques to create one or more dominant negative variant polypeptides. For example, given the teachings contained herein of cancer associated antigens, especially those which are similar to known proteins which have known activities, one of ordinary skill in the art can modify the sequence of the cancer associated antigens  
10 by site-specific mutagenesis, scanning mutagenesis, partial gene deletion or truncation, and the like. See, e.g., U.S. Patent No. 5,580,723 and Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989. The skilled artisan then can test the population of mutagenized polypeptides for diminution in a selected and/or for retention of such an activity. Other similar methods for creating and testing dominant negative variants of a  
15 protein will be apparent to one of ordinary skill in the art.

The invention also involves agents such as polypeptides which bind to cancer associated antigen polypeptides. Such binding agents can be used, for example, in screening assays to detect the presence or absence of cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners and in purification protocols to isolated  
20 cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners. Such agents also can be used to inhibit the native activity of the cancer associated antigen polypeptides, for example, by binding to such polypeptides.

The invention, therefore, embraces peptide binding agents which, for example, can be antibodies or fragments of antibodies having the ability to selectively bind to cancer associated  
25 antigen polypeptides. Antibodies include polyclonal and monoclonal antibodies, prepared according to conventional methodology.

Significantly, as is well-known in the art, only a small portion of an antibody molecule, the paratope, is involved in the binding of the antibody to its epitope (see, in general, Clark, W.R. (1986) The Experimental Foundations of Modern Immunology Wiley & Sons, Inc., New York;  
30 Roitt, I. (1991) Essential Immunology, 7th Ed., Blackwell Scientific Publications, Oxford). The

pFc' and Fc regions, for example, are effectors of the complement cascade but are not involved in antigen binding. An antibody from which the pFc' region has been enzymatically cleaved, or which has been produced without the pFc' region, designated an F(ab')<sub>2</sub> fragment, retains both of the antigen binding sites of an intact antibody. Similarly, an antibody from which the Fc region has

5 been enzymatically cleaved, or which has been produced without the Fc region, designated an Fab fragment, retains one of the antigen binding sites of an intact antibody molecule. Proceeding further, Fab fragments consist of a covalently bound antibody light chain and a portion of the antibody heavy chain denoted Fd. The Fd fragments are the major determinant of antibody specificity (a single Fd fragment may be associated with up to ten different light chains without  
10 altering antibody specificity) and Fd fragments retain epitope-binding ability in isolation.

Within the antigen-binding portion of an antibody, as is well-known in the art, there are complementarity determining regions (CDRs), which directly interact with the epitope of the antigen, and framework regions (FRs), which maintain the tertiary structure of the paratope (see, in general, Clark, 1986; Roitt, 1991). In both the heavy chain Fd fragment and the light chain of IgG  
15 immunoglobulins, there are four framework regions (FR1 through FR4) separated respectively by three complementarity determining regions (CDR1 through CDR3). The CDRs, and in particular the CDR3 regions, and more particularly the heavy chain CDR3, are largely responsible for antibody specificity.

It is now well-established in the art that the non-CDR regions of a mammalian antibody may  
20 be replaced with similar regions of conspecific or heterospecific antibodies while retaining the epitopic specificity of the original antibody. This is most clearly manifested in the development and use of "humanized" antibodies in which non-human CDRs are covalently joined to human FR and/or Fc/pFc' regions to produce a functional antibody. Thus, for example, PCT International Publication Number WO 92/04381 teaches the production and use of humanized murine RSV  
25 antibodies in which at least a portion of the murine FR regions have been replaced by FR regions of human origin. Such antibodies, including fragments of intact antibodies with antigen-binding ability, are often referred to as "chimeric" antibodies.

Thus, as will be apparent to one of ordinary skill in the art, the present invention also provides for F(ab')<sub>2</sub>, Fab, Fv and Fd fragments; chimeric antibodies in which the Fc and/or FR  
30 and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous

- 35 -

human or non-human sequences; chimeric F(ab')<sub>2</sub> fragment antibodies in which the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human sequences; chimeric Fab fragment antibodies in which the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human

5 sequences; and chimeric Fd fragment antibodies in which the FR and/or CDR1 and/or CDR2 regions have been replaced by homologous human or non-human sequences. The present invention also includes so-called single chain antibodies.

Thus, the invention involves polypeptides of numerous size and type that bind specifically to cancer associated antigen polypeptides, and complexes of both cancer associated antigen  
10 polypeptides and their binding partners. These polypeptides may be derived also from sources other than antibody technology. For example, such polypeptide binding agents can be provided by degenerate peptide libraries which can be readily prepared in solution, in immobilized form or as phage display libraries. Combinatorial libraries also can be synthesized of peptides containing one or more amino acids. Libraries further can be synthesized of peptoids and non-peptide synthetic  
15 moieties.

Phage display can be particularly effective in identifying binding peptides useful according to the invention. Briefly, one prepares a phage library (using e.g. m13, fd, or lambda phage), displaying inserts from 4 to about 80 amino acid residues using conventional procedures. The inserts may represent, for example, a completely degenerate or biased array. One then can select  
20 phage-bearing inserts which bind to the cancer associated antigen polypeptide. This process can be repeated through several cycles of reselection of phage that bind to the cancer associated antigen polypeptide. Repeated rounds lead to enrichment of phage bearing particular sequences. DNA sequence analysis can be conducted to identify the sequences of the expressed polypeptides. The minimal linear portion of the sequence that binds to the cancer associated antigen polypeptide can be  
25 determined. One can repeat the procedure using a biased library containing inserts containing part or all of the minimal linear portion plus one or more additional degenerate residues upstream or downstream thereof. Yeast two-hybrid screening methods also may be used to identify polypeptides that bind to the cancer associated antigen polypeptides. Thus, the cancer associated antigen polypeptides of the invention, or a fragment thereof, can be used to screen peptide libraries,  
30 including phage display libraries, to identify and select peptide binding partners of the cancer

- 36 -

associated antigen polypeptides of the invention. Such molecules can be used, as described, for screening assays, for purification protocols, for interfering directly with the functioning of cancer associated antigen and for other purposes that will be apparent to those of ordinary skill in the art.

As detailed herein, the foregoing antibodies and other binding molecules may be used for

---

5 example to identify tissues expressing protein or to purify protein. Antibodies also may be coupled to specific diagnostic labeling agents for imaging of cells and tissues that express cancer associated antigens or to therapeutically useful agents according to standard coupling procedures. Diagnostic agents include, but are not limited to, barium sulfate, iocetamic acid, iopanoic acid, ipodate calcium, diatrizoate sodium, diatrizoate meglumine, metrizamide, tyropanoate sodium and radiodiagnostics

10 including positron emitters such as fluorine-18 and carbon-11, gamma emitters such as iodine-123, technetium-99m, iodine-131 and indium-111, nuclides for nuclear magnetic resonance such as fluorine and gadolinium. Other diagnostic agents useful in the invention will be apparent to one of ordinary skill in the art. As used herein, "therapeutically useful agents" include any therapeutic molecule which desirably is targeted selectively to a cell expressing one of the cancer antigens

15 disclosed herein, including antineoplastic agents, radioiodinated compounds, toxins, other cytostatic or cytolytic drugs, and so forth. Antineoplastic therapeutics are well known and include: aminogluthethimide, azathioprine, bleomycin sulfate, busulfan, carmustine, chlorambucil, cisplatin, cyclophosphamide, cyclosporine, cytarabidine, dacarbazine, dactinomycin, daunorubicin, doxorubicin, taxol, etoposide, fluorouracil, interferon- $\alpha$ , lomustine, mercaptopurine, methotrexate,

20 mitotane, procarbazine HCl, thioguanine, vinblastine sulfate and vincristine sulfate. Additional antineoplastic agents include those disclosed in Chapter 52, Antineoplastic Agents (Paul Calabresi and Bruce A. Chabner), and the introduction thereto, 1202-1263, of Goodman and Gilman's "The Pharmacological Basis of Therapeutics", Eighth Edition, 1990, McGraw-Hill, Inc. (Health Professions Division). Toxins can be proteins such as, for example, pokeweed anti-viral protein,

25 cholera toxin, pertussis toxin, ricin, gelonin, abrin, diphtheria exotoxin, or *Pseudomonas* exotoxin. Toxin moieties can also be high energy-emitting radionuclides such as cobalt-60.

In the foregoing methods, antibodies prepared according to the invention also preferably are specific for the cancer associated antigen/MHC complexes described herein.

When "disorder" is used herein, it refers to any pathological condition where the cancer

30 associated antigens are expressed. An example of such a disorder is cancer, breast, colon, gastric,

renal, prostate and lung cancers as particular examples.

Samples of tissue and/or cells for use in the various methods described herein can be obtained through standard methods such as tissue biopsy, including punch biopsy and cell scraping, and collection of blood or other bodily fluids by aspiration or other methods.

5 In certain embodiments of the invention, an immunoreactive cell sample is removed from a subject. By "immunoreactive cell" is meant a cell which can mature into an immune cell (such as a B cell, a helper T cell, or a cytolytic T cell) upon appropriate stimulation. Thus immunoreactive cells include CD34<sup>+</sup> hematopoietic stem cells, immature T cells and immature B cells. When it is desired to produce cytolytic T cells which recognize a cancer associated antigen, the  
10 immunoreactive cell is contacted with a cell which expresses a cancer associated antigen under conditions favoring production, differentiation and/or selection of cytolytic T cells; the differentiation of the T cell precursor into a cytolytic T cell upon exposure to antigen is similar to clonal selection of the immune system.

Some therapeutic approaches based upon the disclosure are premised on a response by a  
15 subject's immune system, leading to lysis of antigen presenting cells, such as breast cancer cells which present one or more cancer associated antigens. One such approach is the administration of autologous CTLs specific to a cancer associated antigen/MHC complex to a subject with abnormal cells of the phenotype at issue. It is within the ability of one of ordinary skill in the art to develop such CTLs *in vitro*. An example of a method for T cell differentiation is presented in International  
20 Application number PCT/US96/05607. Generally, a sample of cells taken from a subject, such as blood cells, are contacted with a cell presenting the complex and capable of provoking CTLs to proliferate. The target cell can be a transfectant, such as a COS cell of the type described herein. These transfectants present the desired complex of their surface and, when combined with a CTL of interest, stimulate its proliferation. COS cells, such as those used herein are widely available, as are  
25 other suitable host cells. Specific production of a CTL clone is described herein, and is well known in the art. The clonally expanded autologous CTLs then are administered to the subject.

Another method for selecting antigen-specific CTL clones has recently been described (Altman et al., *Science* 274:94-96, 1996; Dunbar et al., *Curr. Biol.* 8:413-416, 1998), in which fluorogenic tetramers of MHC class I molecule/peptide complexes are used to detect specific CTL  
30 clones. Briefly, soluble MHC class I molecules are folded *in vitro* in the presence of  $\beta_2$ -

microglobulin and a peptide antigen which binds the class I molecule. After purification, the MHC/peptide complex is purified and labeled with biotin. Tetramers are formed by mixing the biotinylated peptide-MHC complex with labeled avidin (e.g. phycoerythrin) at a molar ratio of 4:1. Tetramers are then contacted with a source of CTLs such as peripheral blood or lymph node. The

5 tetramers bind CTLs which recognize the peptide antigen/MHC class I complex. Cells bound by the tetramers can be sorted by fluorescence activated cell sorting to isolate the reactive CTLs. The isolated CTLs then can be expanded *in vitro* for use as described herein.

To detail a therapeutic methodology, referred to as adoptive transfer (Greenberg, *J. Immunol.* 136(5): 1917, 1986; Riddel et al., *Science* 257: 238, 1992; Lynch et al, *Eur. J. Immunol.* 21: 1403-  
10 1410,1991; Kast et al., *Cell* 59: 603-614, 1989), cells presenting the desired complex are combined with CTLs leading to proliferation of the CTLs specific thereto. The proliferated CTLs are then administered to a subject with a cellular abnormality which is characterized by certain of the abnormal cells presenting the particular complex. The CTLs then lyse the abnormal cells, thereby achieving the desired therapeutic goal.

15 The foregoing therapy assumes that at least some of the subject's abnormal cells present the relevant HLA cancer associated antigen complex. This can be determined very easily, as the art is very familiar with methods for identifying cells which present a particular HLA molecule, as well as how to identify cells expressing DNA of the pertinent sequences, in this case a cancer associated antigen sequence. Once cells presenting the relevant complex are identified via the foregoing  
20 screening methodology, they can be combined with a sample from a patient, where the sample contains CTLs. If the complex presenting cells are lysed by the mixed CTL sample, then it can be assumed that a cancer associated antigen is being presented, and the subject is an appropriate candidate for the therapeutic approaches set forth *supra*.

Adoptive transfer is not the only form of therapy that is available in accordance with the  
25 invention. CTLs can also be provoked *in vivo*, using a number of approaches. One approach is the use of non-proliferative cells expressing the complex. The cells used in this approach may be those that normally express the complex, such as irradiated tumor cells or cells transfected with one or both of the genes necessary for presentation of the complex (i.e. the antigenic peptide and the presenting HLA molecule). Chen et al. (*Proc. Natl. Acad. Sci. USA* 88: 110-114,1991) exemplifies  
30 this approach, showing the use of transfected cells expressing HPVE7 peptides in a therapeutic

regime. Various cell types may be used. Similarly, vectors carrying one or both of the genes of interest may be used. Viral or bacterial vectors are especially preferred. For example, nucleic acids which encode a breast cancer associated antigen polypeptide or peptide may be operably linked to promoter and enhancer sequences which direct expression of the cancer associated antigen

- 
- 5 polypeptide or peptide in certain tissues or cell types. The nucleic acid may be incorporated into an expression vector. Expression vectors may be unmodified extrachromosomal nucleic acids, plasmids or viral genomes constructed or modified to enable insertion of exogenous nucleic acids, such as those encoding cancer associated antigen, as described elsewhere herein. Nucleic acids encoding a cancer associated antigen also may be inserted into a retroviral genome, thereby
- 10 facilitating integration of the nucleic acid into the genome of the target tissue or cell type. In these systems, the gene of interest is carried by a microorganism, e.g., a Vaccinia virus, retrovirus or adenovirus, and the materials de facto "infect" host cells. The cells which result present the complex of interest, and are recognized by autologous CTLs, which then proliferate.

- A similar effect can be achieved by combining the cancer associated antigen or a stimulatory
- 15 fragment thereof with an adjuvant to facilitate incorporation into antigen presenting cells *in vivo*. The breast cancer associated antigen polypeptide is processed to yield the peptide partner of the HLA molecule while a cancer associated antigen peptide may be presented without the need for further processing. Generally, subjects can receive an intradermal injection of an effective amount of the cancer associated antigen. Initial doses can be followed by booster doses, following
- 20 immunization protocols standard in the art. Preferred cancer associated antigens include those found to react with allogeneic cancer antisera, such as the nucleic acids (and encoded polypeptides and peptides) of SEQ ID NO:31,33 and 34 and others, for example, shown in the examples below.

- The invention involves the use of various materials disclosed herein to "immunize" subjects or as "vaccines". As used herein, "immunization" or "vaccination" means increasing or activating
- 25 an immune response against an antigen. It does not require elimination or eradication of a condition but rather contemplates the clinically favorable enhancement of an immune response toward an antigen. Generally accepted animal models can be used for testing of immunization against breast cancer using a cancer associated antigen nucleic acid. For example, cancer cells can be introduced into a mouse to create a tumor, and one or more cancer associated antigen nucleic acids can be
- 30 delivered by the methods described herein. The effect on the cancer cells (e.g., reduction of tumor

size) can be assessed as a measure of the effectiveness of the cancer associated antigen nucleic acid immunization. Of course, testing of the foregoing animal model using more conventional methods for immunization include the administration of one or more cancer associated antigen polypeptides or peptides derived therefrom, optionally combined with one or more adjuvants and/or cytokines to

- 
- 5 boost the immune response. Methods for immunization, including formulation of a vaccine composition and selection of doses, route of administration and the schedule of administration (e.g. primary and one or more booster doses), are well known in the art. The tests also can be performed in humans, where the end point is to test for the presence of enhanced levels of circulating CTLs against cells bearing the antigen, to test for levels of circulating antibodies against the antigen, to test
- 10 for the presence of cells expressing the antigen and so forth.

As part of the immunization compositions, one or more cancer associated antigens or stimulatory fragments thereof are administered with one or more adjuvants to induce an immune response or to increase an immune response. An adjuvant is a substance incorporated into or administered with antigen which potentiates the immune response. Adjuvants may enhance the

15 immunological response by providing a reservoir of antigen (extracellularly or within macrophages), activating macrophages and stimulating specific sets of lymphocytes. Adjuvants of many kinds are well known in the art. Specific examples of adjuvants include monophosphoryl lipid A (MPL, SmithKline Beecham), a congener obtained after purification and acid hydrolysis of *Salmonella minnesota* Re 595 lipopolysaccharide; saponins including QS21 (SmithKline Beecham), a pure

20 QA-21 saponin purified from *Quillja saponaria* extract; DQS21, described in PCT application WO96/33739 (SmithKline Beecham); QS-7, QS-17, QS-18, and QS-L1 (So et al., *Mol. Cells* 7:178-186, 1997); incomplete Freund's adjuvant; complete Freund's adjuvant; montanide; and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol. Preferably, the peptides are administered mixed with a combination of DQS21/MPL. The ratio of

25 DQS21 to MPL typically will be about 1:10 to 10:1, preferably about 1:5 to 5:1 and more preferably about 1:1. Typically for human administration, DQS21 and MPL will be present in a vaccine formulation in the range of about 1 µg to about 100 µg. Other adjuvants are known in the art and can be used in the invention (see, e.g. Goding, *Monoclonal Antibodies: Principles and Practice*, 2nd Ed., 1986). Methods for the preparation of mixtures or emulsions of peptide and adjuvant are well

30 known to those of skill in the art of vaccination.



Other agents which stimulate the immune response of the subject can also be administered to the subject. For example, other cytokines are also useful in vaccination protocols as a result of their lymphocyte regulatory properties. Many other cytokines useful for such purposes will be known to one of ordinary skill in the art, including interleukin-12 (IL-12) which has been shown to enhance

5 the protective effects of vaccines (*see, e.g., Science* 268: 1432-1434, 1995), GM-CSF and IL-18.

Thus cytokines can be administered in conjunction with antigens and adjuvants to increase the immune response to the antigens.

There are a number of immune response potentiating compounds that can be used in vaccination protocols. These include costimulatory molecules provided in either protein or nucleic acid form. Such costimulatory molecules include the B7-1 and B7-2 (CD80 and CD86 respectively) 10 molecules which are expressed on dendritic cells (DC) and interact with the CD28 molecule expressed on the T cell. This interaction provides costimulation (signal 2) to an antigen/MHC/TCR stimulated (signal 1) T cell, increasing T cell proliferation and effector function. B7 also interacts with CTLA4 (CD152) on T cells and studies involving CTLA4 and B7 ligands indicate that the B7- 15 CTLA4 interaction can enhance antitumor immunity and CTL proliferation, Zheng P., et al. *PNAS* 95 (11) 6284-6289 (1998).

B7 typically is not expressed on tumor cells so they are not efficient antigen presenting cells (APCs) for T cells. Induction of B7 expression would enable the tumor cells to stimulate more efficiently CTL proliferation and effector function. A combination of B7/IL-6/IL-12 costimulation 20 has been shown to induce IFN-gamma and a Th1 cytokine profile in the T cell population leading to further enhanced T cell activity, Gajewski et al., *J. Immunol*, 154:5637-5648 (1995). Tumor cell transfection with B7 has been discussed in relation to *in vitro* CTL expansion for adoptive transfer immunotherapy by Wang et al., *J Immunol*, 19:1-8 (1986). Other delivery mechanisms for the B7 molecule would include nucleic acid (naked DNA) immunization Kim J., et al. *Nat Biotechnol.*, 25 15:7:641-646 (1997) and recombinant viruses such as adeno and pox (Wendtner et al., *Gene Ther*, 4:7:726-735 (1997)). These systems are all amenable to the construction and use of expression cassettes for the coexpression of B7 with other molecules of choice such as the antigens or fragment(s) of antigens discussed herein (including polytopes) or cytokines. These delivery systems can be used for induction of the appropriate molecules *in vitro* and for *in vivo* vaccination situations.

30 The use of anti-CD28 antibodies to directly stimulate T cells *in vitro* and *in vivo* could also be

considered.

Lymphocyte function associated antigen-3 (LFA-3) is expressed on APCs and some tumor cells and interacts with CD2 expressed on T cells. This interaction induces T cell IL-2 and IFN-gamma production and can thus complement but not substitute, the B7/CD28 costimulatory

5 interaction, Parra et al., *J. Immunol.*, 158:637-642 (1997), Fenton et al., *J. Immunother*, 21:2:95-108 (1989).

Lymphocyte function associated antigen-1 (LFA-1) is expressed on leukocytes and interacts with ICAM-1 expressed on APCs and some tumor cells. This interaction induces T cell IL-2 and IFN-gamma production and can thus complement but not substitute, the B7/CD28 costimulatory  
10 interaction, Fenton et al., *J. Immunother*, 21:2:95-108 (1998). LFA-1 is thus a further example of a costimulatory molecule that could be provided in a vaccination protocol in the various ways discussed above for B7.

Complete CTL activation and effector function requires Th cell help through the interaction between the Th cell CD40L (CD40 ligand) molecule and the CD40 molecule expressed by DCS,  
15 Ridge et al., *Nature*, 393:474 (1998), Bennett et al., *Nature*, 393:478 (1998), Schoenberger et al., *Nature*, 393:480 (1998). This mechanism of this costimulatory signal is likely to involve upregulation of B7 and associated IL-6/IL-12 production by the DC (APC). The CD40-CD40L interaction thus complements the signal 1 (antigen/MHC-TCR) and signal 2 (B7-CD28) interactions.

The use of anti-CD40 antibodies to stimulate DC cells directly, would be expected to  
20 enhance a response to tumor antigens which are normally encountered outside of an inflammatory context or are presented by non-professional APCs (tumor cells). In these situations Th help and B7 costimulation signals are not provided. This mechanism might be used in the context of antigen pulsed DC based therapies or in situations where Th epitopes have not been defined within known TRA precursors.

25 A cancer associated antigen polypeptide, or a fragment thereof, also can be used to isolate their native binding partners. Isolation of such binding partners may be performed according to well-known methods. For example, isolated cancer associated antigen polypeptides can be attached to a substrate (e.g., chromatographic media, such as polystyrene beads, or a filter), and then a solution suspected of containing the binding partner may be applied to the substrate. If a binding  
30 partner which can interact with cancer associated antigen polypeptides is present in the solution,

then it will bind to the substrate-bound cancer associated antigen polypeptide. The binding partner then may be isolated.

It will also be recognized that the invention embraces the use of the cancer associated antigen cDNA sequences in expression vectors, as well as to transfect host cells and cell lines, be these

5 prokaryotic (e.g., *E. coli*), or eukaryotic (e.g., dendritic cells, B cells, CHO cells, COS cells, yeast expression systems and recombinant baculovirus expression in insect cells). Especially useful are mammalian cells such as human, mouse, hamster, pig, goat, primate, etc. They may be of a wide variety of tissue types, and include primary cells and cell lines. Specific examples include keratinocytes, peripheral blood leukocytes, bone marrow stem cells and embryonic stem cells. The  
10 expression vectors require that the pertinent sequence, i.e., those nucleic acids described *supra*, be operably linked to a promoter.

The invention also contemplates delivery of nucleic acids, polypeptides or peptides for vaccination. Delivery of polypeptides and peptides can be accomplished according to standard vaccination protocols which are well known in the art. In another embodiment, the delivery of  
15 nucleic acid is accomplished by *ex vivo* methods, i.e. by removing a cell from a subject, genetically engineering the cell to include a breast cancer associated antigen, and reintroducing the engineered cell into the subject. One example of such a procedure is outlined in U.S. Patent 5,399,346 and in exhibits submitted in the file history of that patent, all of which are publicly available documents. In general, it involves introduction *in vitro* of a functional copy of a gene into a cell(s) of a subject, and  
20 returning the genetically engineered cell(s) to the subject. The functional copy of the gene is under operable control of regulatory elements which permit expression of the gene in the genetically engineered cell(s). Numerous transfection and transduction techniques as well as appropriate expression vectors are well known to those of ordinary skill in the art, some of which are described in PCT application WO95/00654. *In vivo* nucleic acid delivery using vectors such as viruses and  
25 targeted liposomes also is contemplated according to the invention.

In preferred embodiments, a virus vector for delivering a nucleic acid encoding a cancer associated antigen is selected from the group consisting of adenoviruses, adeno-associated viruses, poxviruses including vaccinia viruses and attenuated poxviruses, Semliki Forest virus, Venezuelan equine encephalitis virus, retroviruses, Sindbis virus, and Ty virus-like particle. Examples of  
30 viruses and virus-like particles which have been used to deliver exogenous nucleic acids include:

replication-defective adenoviruses (e.g., Xiang et al., *Virology* 219:220-227, 1996; Eloit et al., *J. Virol* 7:5375-5381, 1997; Chengalvala et al., *Vaccine* 15:335-339, 1997), a modified retrovirus (Townsend et al., *J. Virol.* 71:3365-3374, 1997), a nonreplicating retrovirus (Irwin et al., *J. Virol.* 68:5036-5044, 1994), a replication defective Semliki Forest virus (Zhao et al., *Proc. Natl. Acad. Sci.*

- 
- 5 USA 92:3009-3013, 1995), canarypox virus and highly attenuated vaccinia virus derivative (Paoletti, *Proc. Natl. Acad. Sci. USA* 93:11349-11353, 1996), non-replicative vaccinia virus (Moss, *Proc. Natl. Acad. Sci. USA* 93:11341-11348, 1996), replicative vaccinia virus (Moss, *Dev. Biol. Stand.* 82:55-63, 1994), Venezuelan equine encephalitis virus (Davis et al., *J. Virol.* 70:3781-3787, 1996), Sindbis virus (Pugachev et al., *Virology* 212:587-594, 1995), and Ty virus-like particle (Allsopp et al., *Eur J. Immunol* 26:1951-1959, 1996). In preferred embodiments, the virus vector is an  
10 adenovirus.

Another preferred virus for certain applications is the adeno-associated virus, a double-stranded DNA virus. The adeno-associated virus is capable of infecting a wide range of cell types and species and can be engineered to be replication-deficient. It further has advantages, such as heat  
15 and lipid solvent stability, high transduction frequencies in cells of diverse lineages, including hematopoietic cells, and lack of superinfection inhibition thus allowing multiple series of transductions. The adeno-associated virus can integrate into human cellular DNA in a site-specific manner, thereby minimizing the possibility of insertional mutagenesis and variability of inserted gene expression. In addition, wild-type adeno-associated virus infections have been followed in  
20 tissue culture for greater than 100 passages in the absence of selective pressure, implying that the adeno-associated virus genomic integration is a relatively stable event. The adeno-associated virus can also function in an extrachromosomal fashion.

In general, other preferred viral vectors are based on non-cytopathic eukaryotic viruses in which non-essential genes have been replaced with the gene of interest. Non-cytopathic viruses  
25 include retroviruses, the life cycle of which involves reverse transcription of genomic viral RNA into DNA with subsequent proviral integration into host cellular DNA. Adenoviruses and retroviruses have been approved for human gene therapy trials. In general, the retroviruses are replication-deficient (i.e., capable of directing synthesis of the desired proteins, but incapable of manufacturing an infectious particle). Such genetically altered retroviral expression vectors have  
30 general utility for the high-efficiency transduction of genes *in vivo*. Standard protocols for

producing replication-deficient retroviruses (including the steps of incorporation of exogenous genetic material into a plasmid, transfection of a packaging cell lined with plasmid, production of recombinant retroviruses by the packaging cell line, collection of viral particles from tissue culture media, and infection of the target cells with viral particles) are provided in Kriegler, M., "Gene

- 
- 5 Transfer and Expression, A Laboratory Manual," W.H. Freeman C.O., New York (1990) and Murry, E.J. Ed. "Methods in Molecular Biology," vol. 7, Humana Press, Inc., Clifton, New Jersey (1991).

Preferably the foregoing nucleic acid delivery vectors: (1) contain exogenous genetic material that can be transcribed and translated in a mammalian cell and that can induce an immune response in a host, and (2) contain on a surface a ligand that selectively binds to a receptor on the

10 surface of a target cell, such as a mammalian cell, and thereby gains entry to the target cell.

Various techniques may be employed for introducing nucleic acids of the invention into cells, depending on whether the nucleic acids are introduced *in vitro* or *in vivo* in a host. Such techniques include transfection of nucleic acid-CaPO<sub>4</sub> precipitates, transfection of nucleic acids associated with DEAE, transfection or infection with the foregoing viruses including the nucleic

15 acid of interest, liposome mediated transfection, and the like. For certain uses, it is preferred to target the nucleic acid to particular cells. In such instances, a vehicle used for delivering a nucleic acid of the invention into a cell (e.g., a retrovirus, or other virus; a liposome) can have a targeting molecule attached thereto. For example, a molecule such as an antibody specific for a surface membrane protein on the target cell or a ligand for a receptor on the target cell can be bound to or

20 incorporated within the nucleic acid delivery vehicle. Preferred antibodies include antibodies which selectively bind a cancer associated antigen, alone or as a complex with a MHC molecule.

Especially preferred are monoclonal antibodies. Where liposomes are employed to deliver the nucleic acids of the invention, proteins which bind to a surface membrane protein associated with endocytosis may be incorporated into the liposome formulation for targeting and/or to facilitate

25 uptake. Such proteins include capsid proteins or fragments thereof tropic for a particular cell type, antibodies for proteins which undergo internalization in cycling, proteins that target intracellular localization and enhance intracellular half life, and the like. Polymeric delivery systems also have been used successfully to deliver nucleic acids into cells, as is known by those skilled in the art. Such systems even permit oral delivery of nucleic acids.

30 When administered, the therapeutic compositions of the present invention can be

administered in pharmaceutically acceptable preparations. Such preparations may routinely contain pharmaceutically acceptable concentrations of salt, buffering agents, preservatives, compatible carriers, supplementary immune potentiating agents such as adjuvants and cytokines and optionally other therapeutic agents.

5       The therapeutics of the invention can be administered by any conventional route, including injection or by gradual infusion over time. The administration may, for example, be oral, intravenous, intraperitoneal, intramuscular, intracavity, subcutaneous, or transdermal. When antibodies are used therapeutically, a preferred route of administration is by pulmonary aerosol. Techniques for preparing aerosol delivery systems containing antibodies are well known to those of  
10 skill in the art. Generally, such systems should utilize components which will not significantly impair the biological properties of the antibodies, such as the paratope binding capacity (see, for example, Sciarra and Cutie, "Aerosols," in Remington's Pharmaceutical Sciences, 18th edition, 1990, pp 1694-1712; incorporated by reference). Those of skill in the art can readily determine the various parameters and conditions for producing antibody aerosols without resort to undue  
15 experimentation. When using antisense preparations of the invention, slow intravenous administration is preferred.

The compositions of the invention are administered in effective amounts. An "effective amount" is that amount of a cancer associated antigen composition that alone, or together with further doses, produces the desired response, e.g. increases an immune response to the cancer  
20 associated antigen. In the case of treating a particular disease or condition characterized by expression of one or more cancer associated antigens, such as cancer, the desired response is inhibiting the progression of the disease. This may involve only slowing the progression of the disease temporarily, although more preferably, it involves halting the progression of the disease permanently. This can be monitored by routine methods or can be monitored according to  
25 diagnostic methods of the invention discussed herein. The desired response to treatment of the disease or condition also can be delaying the onset or even preventing the onset of the disease or condition.

Such amounts will depend, of course, on the particular condition being treated, the severity of the condition, the individual patient parameters including age, physical condition, size and  
30 weight, the duration of the treatment, the nature of concurrent therapy (if any), the specific route of

administration and like factors within the knowledge and expertise of the health practitioner. These factors are well known to those of ordinary skill in the art and can be addressed with no more than routine experimentation. It is generally preferred that a maximum dose of the individual components or combinations thereof be used, that is, the highest safe dose according to sound

5 medical judgment. It will be understood by those of ordinary skill in the art, however, that a patient may insist upon a lower dose or tolerable dose for medical reasons, psychological reasons or for virtually any other reasons.

The pharmaceutical compositions used in the foregoing methods preferably are sterile and contain an effective amount of breast cancer associated antigen or nucleic acid encoding cancer  
10 associated antigen for producing the desired response in a unit of weight or volume suitable for administration to a patient. The response can, for example, be measured by determining the immune response following administration of the cancer associated antigen composition via a reporter system as described herein, by measuring downstream effects such as gene expression, or by measuring the physiological effects of the breast cancer associated antigen composition, such as  
15 regression of a tumor or decrease of disease symptoms. Other assays will be known to one of ordinary skill in the art and can be employed for measuring the level of the response.

The doses of cancer associated antigen compositions (e.g., polypeptide, peptide, antibody, cell or nucleic acid) administered to a subject can be chosen in accordance with different parameters, in particular in accordance with the mode of administration used and the state of the subject. Other  
20 factors include the desired period of treatment. In the event that a response in a subject is insufficient at the initial doses applied, higher doses (or effectively higher doses by a different, more localized delivery route) may be employed to the extent that patient tolerance permits.

In general, for treatments for eliciting or increasing an immune response, doses of cancer associated antigen are formulated and administered in doses between 1 ng and 1 mg, and preferably  
25 between 10 ng and 100  $\mu$ g, according to any standard procedure in the art. Where nucleic acids encoding cancer associated antigen or variants thereof are employed, doses of between 1 ng and 0.1 mg generally will be formulated and administered according to standard procedures. Other protocols for the administration of cancer associated antigen compositions will be known to one of ordinary skill in the art, in which the dose amount, schedule of injections, sites of injections, mode of  
30 administration (e.g., intra-tumoral) and the like vary from the foregoing. Administration of cancer

associated antigen compositions to mammals other than humans, e.g. for testing purposes or veterinary therapeutic purposes, is carried out under substantially the same conditions as described above.

As part of the immunization compositions, the peptide antigens are administered with one or

5 more adjuvants to induce an immune response or to increase an immune response. An adjuvant is a substance incorporated into or administered with antigen which potentiates the immune response. Adjuvants may enhance the immunological response by providing a reservoir of antigen (extracellularly or within macrophages), activating macrophages and stimulating specific sets of lymphocytes. Adjuvants of many kinds are well known in the art. Specific examples of adjuvants  
10 include monophosphoryl lipid A (MPL, SmithKline Beecham), a congener obtained after purification and acid hydrolysis of *Salmonella minnesota* Re 595 lipopolysaccharide; saponins including QS21 (SmithKline Beecham), a pure QA-21 saponin purified from *Quillja saponaria* extract; DQS21, described in PCT application WO96/33739 (SmithKline Beecham); QS-7, QS-17, QS-18, and QS-L1 (So et al., *Mol. Cells* 7:178-186, 1997); incomplete Freund's adjuvant; complete  
15 Freund's adjuvant; montanide; and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol. Other adjuvants are known in the art and can be used in the invention (see, e.g. Goding, *Monoclonal Antibodies: Principles and Practice*, 2nd Ed., 1986). Methods for the preparation of mixtures or emulsions of peptide and adjuvant are well known to those of skill in the art of vaccination.

20 Where cancer associated antigen peptides are used for vaccination, modes of administration which effectively deliver the cancer associated antigen and adjuvant, such that an immune response to the antigen is increased, can be used. For administration of a cancer associated antigen peptide in adjuvant, preferred methods include intradermal, intravenous, intramuscular and subcutaneous administration. Although these are preferred embodiments, the invention is not limited by the  
25 particular modes of administration disclosed herein. Standard references in the art (e.g., *Remington's Pharmaceutical Sciences*, 18th edition, 1990) provide modes of administration and formulations for delivery of immunogens with adjuvant or in a non-adjuvant carrier.

When administered, the pharmaceutical preparations of the invention are applied in pharmaceutically-acceptable amounts and in pharmaceutically-acceptable compositions. The term  
30 "pharmaceutically acceptable" means a non-toxic material that does not interfere with the



effectiveness of the biological activity of the active ingredients. Such preparations may routinely contain salts, buffering agents, preservatives, compatible carriers, and optionally other therapeutic agents. When used in medicine, the salts should be pharmaceutically acceptable, but non-pharmaceutically acceptable salts may conveniently be used to prepare pharmaceutically-

- 
- 5 acceptable salts thereof and are not excluded from the scope of the invention. Such pharmacologically and pharmaceutically-acceptable salts include, but are not limited to, those prepared from the following acids: hydrochloric, hydrobromic, sulfuric, nitric, phosphoric, maleic, acetic, salicylic, citric, formic, malonic, succinic, and the like. Also, pharmaceutically-acceptable salts can be prepared as alkaline metal or alkaline earth salts, such as sodium,  
10 potassium or calcium salts.

- A breast cancer associated antigen composition may be combined, if desired, with a pharmaceutically-acceptable carrier. The term "pharmaceutically-acceptable carrier" as used herein means one or more compatible solid or liquid fillers, diluents or encapsulating substances which are suitable for administration into a human. The term "carrier" denotes an organic or  
15 inorganic ingredient, natural or synthetic, with which the active ingredient is combined to facilitate the application. The components of the pharmaceutical compositions also are capable of being co-mingled with the molecules of the present invention, and with each other, in a manner such that there is no interaction which would substantially impair the desired pharmaceutical efficacy.

- 20 The pharmaceutical compositions may contain suitable buffering agents, including: acetic acid in a salt; citric acid in a salt; boric acid in a salt; and phosphoric acid in a salt.

The pharmaceutical compositions also may contain, optionally, suitable preservatives, such as: benzalkonium chloride; chlorobutanol; parabens and thimerosal.

- The pharmaceutical compositions may conveniently be presented in unit dosage form and  
25 may be prepared by any of the methods well-known in the art of pharmacy. All methods include the step of bringing the active agent into association with a carrier which constitutes one or more accessory ingredients. In general, the compositions are prepared by uniformly and intimately bringing the active compound into association with a liquid carrier, a finely divided solid carrier, or both, and then, if necessary, shaping the product.

- 30 Compositions suitable for oral administration may be presented as discrete units, such as

capsules, tablets, lozenges, each containing a predetermined amount of the active compound. Other compositions include suspensions in aqueous liquids or non-aqueous liquids such as a syrup, elixir or an emulsion.

Compositions suitable for parenteral administration conveniently comprise a sterile

- 
- 5 aqueous or non-aqueous preparation of breast cancer associated antigen polypeptides or nucleic acids, which is preferably isotonic with the blood of the recipient. This preparation may be formulated according to known methods using suitable dispersing or wetting agents and suspending agents. The sterile injectable preparation also may be a sterile injectable solution or suspension in a non-toxic parenterally-acceptable diluent or solvent, for example, as a solution in
- 10 1,3-butane diol. Among the acceptable vehicles and solvents that may be employed are water, Ringer's solution, and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose any bland fixed oil may be employed including synthetic mono-or di-glycerides. In addition, fatty acids such as oleic acid may be used in the preparation of injectables. Carrier formulation suitable for oral,
- 15 subcutaneous, intravenous, intramuscular, etc. administrations can be found in *Remington's Pharmaceutical Sciences*, Mack Publishing Co., Easton, PA.

### Examples

#### **Example 1: Preparation of breast cancer cDNA expression libraries**

- 20 Step 1: Purification of total RNA from tumors.

Total RNA was isolated from tumor samples using the guanidium thiocyanate-phenol-chloroform extraction protocol described by Chomczynski and Sacci (*Anal. Biochem.* 162:156-159, 1987).

Step 2: Purification of mRNA.

- 25 A Dynabeads mRNA isolation kit (Dynal, Cat.No. 610.01) was used to isolate mRNA from the pool of total RNA isolated in step 1 above according to the manufacturer's instructions.

Step 3: cDNA synthesis.

- cDNA synthesis was performed using a ZAP-cDNA synthesis Kit (Stratagene, La Jolla CA; Cat. No. 200400) according to the manufacturer's protocol. A specific linker-primer which contains
- 30 a XbaI cloning site was designed and used in this protocol, to facilitate subcloning into TriplEx

vector. The sequence of the primer was:

GAGAGAGAGAGAGAGAGAGAAGTCGACTCTAGATTTTTTTTTTTTTTTTTT-Xba I site

Step 4: Ligation into the TriplEx vector arms.

5 The cDNAs generated in step 3 above were ligated into TriplEx vector arms (Clontech, Palo Alto, CA; Cat. No. 6162-1); the arms were predigested with EcoR I/Xba I.

Step 5: Packaging into phages with Gigapack III kit.

The ligation mix (TriplEx/cDNA) from step 4 was packed into phages using the Gigapack III Gold Cloning Kit (Stratagene, Cat. N.200450) according to the protocol supplied with the kit.

10 Step 6: Titering and amplification of generated libraries was performed according to the Stratagene protocols.

The foregoing protocol was used to prepare several libraries from tumor sample of different patients. Some libraries were prepared using the UNI-ZAP XR vector system (Stratagene)

15 according to the manufacturer's protocol, and some using the TriplEx system as described above.

Table 2

UNI-ZAP Libraries		
Code for tumors	Titer of the library	Histopathological diagnosis
20 HBR173	$1.8 \times 10^6$ pfu	Ductal Carcinoma, Grade III
HBR184	$3.5 \times 10^6$ pfu	Invasive Ductal Carcinoma, Grade II
TriplEx libraries		
Code for tumors	Titer of the library	Histopathological diagnosis
HBR173	$2.3 \times 10^6$ pfu	Ductal Carcinoma, Grade III
25 HBR184	$1.1 \times 10^6$ pfu	Invasive Ductal Carcinoma, Grade II
HBR257	$2.5 \times 10^6$ pfu	Invasive Ductal Carcinoma, Grade II
HBR297	$4.0 \times 10^6$ pfu	Ductal Carcinoma, Grade II
HBR248	$1.0 \times 10^6$ pfu	Invasive Ductal Carcinoma with Vascular Permeation, Grade III

HBR271	2.5 x 10 <sup>6</sup> pfu	Medullary Carcinoma
HBR263	10.0 x 10 <sup>6</sup> pfu	Inv. Pleiomorphic Lobular Carcinoma, Grade II

All libraries were screened with the exception of HBR173 (no autologous serum). No  
5 serum-positive clones were found by screening HBR271 library.

### Example 2: Immunoscreening

Sera was obtained from donors undergoing routine diagnostic and therapeutic procedures. It was stored at - 70°C prior to absorption. Sera, at a dilution of 1:10 in Tris buffered saline (TBS, pH  
10 7.5), was sequentially passed through Sepharose 4B columns which had been coupled to lysates from *E. coli* Y1090 and bacteriophage infected *E. coli* BNN97 (5 Prime 3 Prime, Inc. Boulder, Co.). Final serum dilutions were prepared in 0.2% non-fat dried milk/TBS (NFDM) and stored at 4°C. Library screening was performed as described by Sahin et al. (*Proc. Natl. Acad. Sci. USA* 92:11810-11813, 1995) with following modifications. Recombinant phage at a concentration of 4 x  
15 10<sup>3</sup> per 15 cm plate were amplified for 6 hours and transferred to nitrocellulose membranes for an additional 15 hours at 37°C. Membranes were then blocked with 5% NFDM. As an alternative to generation of IgG subtracted libraries, membranes were pre-screened in a 1:2000 dilution of peroxidase conjugated, Fc fragment specific, goat anti-human IgG (Jackson Immunoresearch Laboratories Inc., West Grove, PA) for 1 hour at room temperature. Color was developed with 3,3'  
20 diaminobenzidine tetrahydrochloride and IgG encoding clones were scored. Membranes were then incubated in a 1:100 dilution of absorbed autologous sera for 15 hours at room temperature. Following serum exposure, filters were incubated in a 1:3000 dilution of alkaline phosphatase conjugated, Fc fragment specific, goat anti-human IgG (Jackson Immunoresearch Laboratories Inc.) for 1 hour at room temperature and processed for 4-nitro blue tetrazolium  
25 chloride/5-bromo-4-chloro- 3-indolyl-phosphate color development. Serum positive clones were subcloned and retested for serum reactivity as above except nitrocellulose transfer was decreased to 3 hours. For the determination of allogeneic serum reactivity, plates containing an equal number of serum positive clones and negative control plaques were similarly processed less the IgG prescreening steps. A minimum of 5 x 10<sup>5</sup> recombinants were screened per cDNA library, a number

which approximates a point at which the likelihood of repeat isolations of previously identified clones outweigh the prospect of identifying new clones.

### Example 3: DNA Sequencing

- 5 Phage cDNA clones were converted to pBKC<sub>CMV</sub> phagemid forms by in vivo excision. Plasmid DNA was purified on Qiaprep spin columns (Qiagen Inc. Chatsworth, CA) and subjected to EcoRI/XbaI restriction enzyme digestion. Clones representing different cDNA inserts were sequenced at Cornell University DNA services (Ithaca, NY) using an ABI Prism (Perkin Elmer) automated DNA sequencer. The sequences of the clones were compared with sequences in
- 10 GenBank and HGI databases to detect homologous nucleic acid and/or protein sequences. The following table lists exemplary related sequences.

Table 3: Sequences Related to Breast Cancer Associated Antigen Clones

Clone	Nucleotide Homology	Clone	Nucleotide Homology	Clone	Nucleotide Homology
15 LONY-Br-1	L34543	LONY-Br-23	AA262134, U74628	LONY-Br-44	D15057
LONY-Br-2	S75417	LONY-Br-24	AA282633	LONY-Br-45	AB000815
LONY-Br-3	J05211	LONY-Br-25	M62324	LONY-Br-46	L04733
LONY-Br-4	X15187	LONY-Br-26	M99389	LONY-Br-47	X88791
LONY-Br-5	X62083	LONY-Br-27	X79389	LONY-Br-48	AF000430
20 LONY-Br-6	J04965	LONY-Br-28	D44466	LONY-Br-49	none
LONY-Br-7	D63784	LONY-Br-29	M33197	LONY-Br-50	AA226732
LONY-Br-8	U11292	LONY-Br-30	M17886	LONY-Br-51	AA046574
LONY-Br-9	HSB06D102	LONY-Br-31	L38941	LONY-Br-52	none
LONY-Br-10	none	LONY-Br-32	X17644	LONY-Br-53	AB002307
25 LONY-Br-11	none	LONY-Br-33	X75342	92	AA127328
LONY-Br-12	AA430998	LONY-Br-33	X75342	101	AA167314
LONY-Br-13	D83032	LONY-Br-34	U43368	102	AA508139
LONY-Br-14	AA034417	LONY-Br-35	X15882	107	none
LONY-Br-15	AA167070	LONY-Br-37	AA121558	109	AA220229

LONY-Br-16	none	LONY-Br-38	AA211771	110	W67775
LONY-Br-17	AA161103	LONY-Br-39	AA367417	111	AA280070
LONY-Br-19	R13835	LONY-Br-40	AA188052	112	AF004292
LONY-Br-20	HUMORF003	LONY-Br-41	THC83518	131	none
5 LONY-Br-21	S74572	LONY-Br-42	none	143	AA481578
LONY-Br-22	AA070233	LONY-Br-43	HU35246	162	AA481578

#### Example 4: Reverse transcriptase (RT) PCR and Rapid Amplification of cDNA Ends (RACE)

10 The mRNA expression pattern of selected cDNA clones was determined by RT-PCR using a panel of normal tissue RNA. This test panel consisted of lung, testis, small intestine, colon, breast, liver, and placenta, and was purchased from Clontech Laboratories Inc. (Palo Alto, CA). Colon tumor RNA was also included in this panel and was prepared as described above. As a control for genomic DNA contamination, all cDNA synthesis reactions were set up in duplicate with the

15 additional sample lacking reverse transcriptase. Gene specific PCR primers were designed to amplify 5' fragments of 300-400 bp and were purchased commercially (Gibco BRL, Grand Island, NY). PCR reactions were undertaken at an annealing temperature of 68°C using a Perkin Elmer thermal cycler. In certain cases, RT-PCR products were subcloned into the pCR2.1 plasmid vector (Invitrogen) and multiple clones were subjected to DNA sequencing as described. 5' and 3' RACE

20 reactions were undertaken using gene specific and adapter primers in conjunction with Marathon Ready normal colon cDNA and KlenTaq polymerase (Clontech) as per manufacturers protocol. Products were then subcloned into the pCR2.1 plasmid vector (Invitrogen) and screened by PCR with internal primers for presence of the desired insert. Multiple RACE clones were subjected to DNA sequencing as described.

25

#### Example 5: Northern blot analysis

Northern blots containing the transfer yields of 2 µg poly A<sup>+</sup> RNA from a panel of normal tissues were obtained commercially (Clontech). Random primed <sup>32</sup>P labeled probes consisting of 300-600 bp PCR products from 5 prime coding sequences of serum positive cDNA clones were

30 hybridized for 1.5 hours in Expresshyb (Clontech) at 68°C and washed at high stringency (2 times,

30 min. each, 0.1X SSC/0.1% SDS at 68°C). Resultant blots were used to expose Biomax MS autoradiography film (Eastman Kodak Co., Rochester, NY).

Table 4: Breast Cancer Associated Antigen Clone mRNA sizes

5	Clone	Size (kb)	Clone	Size (kb)	Clone	Size (kb)
	LONY-Br-1	1.8	LONY-Br-17	1.0	LONY-Br-33	2.6
	LONY-Br-2	2.9	LONY-Br-19	1.5	LONY-Br-34	2.1
	LONY-Br-3	4.8	LONY-Br-20	2.4	LONY-Br-35	1.9
	LONY-Br-4	1.2	LONY-Br-21	2.4	LONY-Br-36	0.8
10	LONY-Br-5	0.9	LONY-Br-22	1.6	LONY-Br-37	1.0
	LONY-Br-6	1.4	LONY-Br-23	1.3	LONY-Br-38	2.2
	LONY-Br-7	1.3	LONY-Br-24	3.9	LONY-Br-39	1.9
	LONY-Br-8	0.9	LONY-Br-25	1.9	LONY-Br-40	3.4
	LONY-Br-9	6.0	LONY-Br-26	1.5	LONY-Br-41	3.9
15	LONY-Br-10	3.6	LONY-Br-27	1.2	LONY-Br-42	0.6
	LONY-Br-11	4.6	LONY-Br-28	0.5	LONY-Br-43	1.4
	LONY-Br-12	2.2	LONY-Br-29	0.6	LONY-Br-44	0.7
	LONY-Br-13	1.2	LONY-Br-30	0.8	LONY-Br-45	3.0
	LONY-Br-14	0.8	LONY-Br-31	0.4	LONY-Br-46	3.7
20	LONY-Br-15	0.9	LONY-Br-32	2.2	LONY-Br-47	0.5
	LONY-Br-16	2.5	LONY-Br-33	2.6	LONY-Br-48	1.6

#### **Example 6: Isolation of gastric and prostate clones**

A stomach cancer cDNA library was established, using standard techniques, then the library  
 25 was screened, using the SEREX methodology described supra, and set forth by Sahin et al., *Proc. Natl. Acad. Sci. USA* 92: 11810 (1995), and by Chen et al., *Proc. Natl. Acad. Sci. USA* 94: 1914 (1997), incorporated by reference in their entirety.

To be specific, total RNA was isolated by homogenizing tumor samples in 4M guanidium thiocyanate/0.5% sodium N-lauryl sarcosine/ and 25 mM EDTA followed by centrifugation in 5.7  
 30 M CsCl/25 mM sodium acetate/10 uM EDTA at 320,000 rpm. Total mRNA was removed by passing the sample over an oligo-dT cellulose column. The cDNA libraries were then constructed

by taking 5 ug of mRNA, using standard methodologies to reverse transcribe the material.

Libraries were prepared from four different stomach cancer patients, referred to as "SM", "CK" and "SS" and "KM" respectively. A total of  $2.5 \times 10^6$ ,  $1.1 \times 10^6$ , and  $1.7 \times 10^6$  cDNA clones were obtained from the "SM", "CK" and "SS" individuals. Additional libraries were prepared from

5 prostate cancer patient "OT".

The cDNA was used to construct a lambda phage library, and 500 phages were plated onto XL1-Blue MRF E. coli, and incubated for eight hours at 37°C. A nitrocellulose membrane was then placed on the plate, followed by overnight incubation. The membrane was then washed, four times, without TBS which contained 0.05% Tween, and was then immersed in TBS containing 5% non-fat  
10 dried milk. After one hour, the membrane was incubated with conjugates of peroxidase-goat anti human IgG specific for Fc portions of human antibody (1:2000, diluted in TBS with 1% BSA. The incubation was carried out for one hour, at room temperature, and the membrane was then washed three times with TBS. Those clones which produced antibodies were visualized with 0.06%, 3,3'-diamino benzidine tetrachloride, and 0.015% H<sub>2</sub>O<sub>2</sub>, in 50 mM Tris (pH 7.5). Any clones which  
15 produced immunoglobulin were marked, and then the membrane was washed, two further times, with TBS that contained 0.05% Tween, and then twice with "neat" TBS.

The membranes were then incubated in 1:100 diluted patient serum, overnight, at 4°C. The patient serum had been pretreated. Specifically, 5 ml samples were diluted to 10 ml with TBS containing 1% bovine serum albumin, and 0.02% Na<sub>3</sub>N. The serum had been treated to remove  
20 antibodies to bacteriophage, by passing it through a 5 ml Sepharose column, to which a lysate of E. coli Y1090 had been attached, followed by passage over a second column which had E. coli lysate and lysate of E. coli infected with lambda bacteriophage. The screening was carried out five times. The samples were then diluted to 50 ml, and kept at -80°C, until used as described herein.

Following the overnight incubation with the membrane, the membrane was washed twice  
25 with TBS/0.05% Tween 20, and then once with TBS. A further incubation was carried out, using the protocols discussed supra, for the POD labelled antibodies.

The positive clones were then sequenced, using standard techniques. Following comparison of the sequences to information available in data banks, a total of 36 clones were resolved into known and unknown genes. In the table that follows, the "+" and "-" signs are essentially used to  
30 compare signals to each other. All were positive. Table 5, which follows, summarizes some of this



- 57 -

work isolation and sequencing of "SM" clones. Specifically, with reference to the first page of the table, previously identified human proteins and the nucleotide sequences, set forth in SEQ ID NOS:588-626 are known. The four molecules which follow in SEQ ID NOS:627-634 (gelsolin, zinc finger protein family, variant zinc finger motif protein goliath and homeodomain proteins), have not been identified in humans previously, although there are related molecules found in other species.

Finally, with reference to Table 5, the last four moieties, i.e., prepro- $\alpha$  collagen, heterogeneous ribonucleoprotein D, nucleosome assembly protein 2, and NY-ESO-2/Ulsn NRP/V1 small nuclear ribonucleoprotein, are also known. Nucleotide sequences are set forth at SEQ ID NOS:635-642.

The nucleic acid molecules having the nucleotide sequences set forth at SEQ ID NOS:643-670 represent molecules for which no related sequences were found. SEQ ID NO:671 combines the sequences of SEQ ID NOS:627-630, inclusive. SEQ ID NO:672 combines SEQ ID NOS:643-656, SEQ ID NO:673 combines SEQ ID NOS:657, 659 and 662, while SEQ ID NO:674 combines SEQ ID NOS: 658, 660, 661 and 663.

SEREX analysis of clones from libraries derived from patients "CK", "SS", "KM" (all gastric cancer) and patient "OT" (prostate cancer) was carried out as described above. The nucleotide sequences of clones derived from gastric cancer patients are presented as SEQ ID NOS:176-436. The nucleotide sequences of clones derived from prostate cancer patient "OT" are presented as SEQ ID Nos:437-543.

#### Example 7: Isolation and analysis of colon clones

Colon tumor samples were obtained as surgical samples, and were frozen at -80°C until ready for use.

Total RNA was then isolated from the samples, using the guanidium thiocyanate method of Chirgwin, et al., *Biochemistry* 18: 5294-5299 (1979), incorporated by reference. The total RNA thus obtained was then purified to isolate all poly A<sup>+</sup> RNA, using commercially available products designed for this purpose.

The poly A<sup>+</sup> RNA was then converted into cDNA, and ligated into  $\lambda$ ZAP, a commercially available expression vector, according to the manufacturer's suggested protocol.

Three cDNA libraries were constructed in this way, using colorectal carcinoma samples.

A fourth library, also from colorectal carcinoma, was prepared, albeit in a different way. The

fourth library was an IgG subtraction library, prepared by using a subtraction partner, generated by PCR amplification of a cDNA clone which encoded an IgG molecule. *See, e.g., Ace et al, Endocrinology* 134: 1305-1309 (1994), and incorporated by reference in its entirety. IgG subtraction is done to eliminate any false, positive signals resulting from interaction of cDNA clones

5 which encode IgG, with the IgG then interacting with the anti-human IgG used in the SEREX assay, as described herein. PCR products were biotinylated, and hybridized with denatured second strand cDNA, at 68°C for 18 hours. Biotinylated hybrid molecules were coupled to streptavidin, and then removed by phenol chloroform extraction. Any remaining cDNA was also ligated into  $\lambda$ ZAP. All libraries were amplified, prior to immunoscreening.

10 Immunoscreening was carried out using sera obtained from patients undergoing routine diagnostic and therapeutic procedures. The sera were stored at -70°C prior to use. Upon thawing, the sera were diluted at 1:10 in Tris buffered saline (pH 7.5), and were then passed through Sepharose 4B columns. First, the sera were passed through columns which had *E. coli* Y1090 lysates coupled thereto, and then lysates from bacteriophage infected *E. coli* BNN97 lysates. Final  
15 serum dilutions were then prepared in 0.2% non-fat dried milk/Tris buffered saline.

The method of Sahin et al., *Proc. Natl. Acad. Sci. USA* 92:11810-11813 (1995), and U.S. Patent No. 5,698,396, both of which are incorporated by reference, was used, with some modifications. Specifically, recombinant phages at a concentration of  $4 \times 10^3$  phages per 15 cm plate (pfus), were amplified for six hours, after which they were transferred to nitrocellulose membranes  
20 for 15 hours. The membranes then were blocked with 5% nonfat dried milk.

As an alternative to the IgG subtraction procedure discussed above, membranes were prescreened in a 1:2000 dilution of peroxidase conjugated, Fc fragment specific goat anti-human IgG, for one hour, at room temperature. Color was developed using 3,3'-diaminobenzidine tetrahydrochloride, which permitted scoring of IgG encoding clones.

25 Membranes were then incubated in 1:100 dilutions of autologous sera, which had been pretreated with the Sepharose 4B columns, as described *supra*. The filters were then incubated, in a 1:3000 dilution of alkaline phosphatase conjugated Fc fragment specific, goat anti-human IgG, for one hour, at room temperature. The indicator system 4-nitroblue tetrazolium chloride/5-bromo-4-chloro-3-indolyl-phosphate was then added, and color development assessed. Any positive clones  
30 were subcloned, and retested, except the time on the nitrocellulose membrane was reduced to three

hours.

Positive clones were isolated and sequenced according to standard procedures. The nucleotide sequences of the clones are set forth in the even numbered sequences from SEQ ID Nos:544-586. The odd numbered sequences from SEQ ID Nos:545-587 represent the translated

5 amino acid sequences of the colon nucleic acid clones. Analysis of probes for SEQ ID NOS:544 and 546 confirmed their universal expression.

The foregoing results reflect SEREX isolation of colon cancer clones using autologous serum. The positive clones were then rescreened, using allogeneic serum, following the same method discussed supra, in example 2, except IgG prescreening was omitted. The allogeneic sera  
10 was obtained from sixteen normal blood donors, and twenty nine patients who had been diagnosed with colorectal cancer.

The analysis with the two types of serum revealed that fourteen reacted with a subset of sera from normal and cancer patients, twenty-eight only with autologous sera, and six with both allogeneic and autologous sera. Over 60% of the allogeneic serum samples tested reacted with at  
15 least one of these positive clones. About 20% reacted with two or more.

In view of the results described above, further experiments were carried out using serum samples from patients with other forms of cancer, i.e., renal cancer (13 samples), lung cancer (23 samples), and breast cancer (10 samples). The results are set forth in Table 6 which follows:

20 Table 6: Allogeneic serotyping using colon cancer clones

Clone Number	Normal Sera	Colon Cancer	Renal Cancer	Lung Cancer	Breast Cancer
25 NY-Co-8	0/16	8/29	1/13	0/23	0/10
NY-Co-9	0/16	5/29	1/13	1/23	0/10
NY-Co-13	0/16	5/29	0/13	0/23	0/10
NY-Co-16	0/16	3/29	0/13	0/23	0/10
NY-Co-20	0/16	4/29	0/13	0/23	0/10
30 NY-Co-38	0/16	4/29	3/13	0/23	1/10

Of the six clones which were identified as being reactive with autologous and allogeneic

cancer serum, and not with normal serum, two were found to be identical to previously identified molecules (NY-Co-. Four others were found to have little or no homology to known sequences and thus are preferred allogeneic-reactive colon cancer clones. These nucleic acids and their polypeptide translations are presented as SEQ ID NOS: 544-551: SEQ ID NO: 544/545 (NY-CO-

5 8), SEQ ID NO: 546/547 (NY-CO-9), SEQ ID NO: 548/549 (NY-CO-16) and SEQ ID NO: 550/551 (NY-CO-38). . Of twenty seven allogeneic colon cancer serum samples tested, 67% reacted with at least one of these antigens.

The expression pattern of mRNA corresponding to SEQ ID NOS:544, 546 and 550, as well as other sequences identified via the preceding examples was determined. To do this, RT-  
10 PCR was carried out on a panel of RNA samples, taken from normal tissue. The panel contained RNA of lung, testis, small intestine, colon, breast, liver and placenta tissues. The RNA was purchased from a commercial source. RNA from a colon tumor sample was also included. All samples were set up for duplicate runs, so that genomic DNA contamination could be accounted for. In the controls, no reverse transcriptase was used.

15 Primers were designed which were specific for the cDNA, which would amplify 5'-fragments, from 300-400 base pairs in length. The PCR reactions were undertaken at an annealing temperature of 68°C. Where appropriate, 5' and 3'-RACE reactions were undertaken, using gene specific primers, and adapter primers, together with commercially available reagents. Specifically, SEQ ID NOS: 546 and 550 were tested using RACE. The resulting products were  
20 subcloned into vector pCR 2.1, screened via PCR using internal primers, and then sequenced.

SEQ ID NOS:544 and 546 were found to be amplified in all tissues tested. SEQ ID NO:550 was found in colon tumor, colon metastasis, gastric cancer, renal cancer and colon cancer cell lines Colo 204 and HT29, as well as in normal colon, small intestine, brain, stomach, testis, pancreas, liver, lung, heart, fetal brain, mammary gland, bladder, adrenal gland tissues. It  
25 is was not found in normal uterine, skeletal muscle, peripheral blood lymphocytes, placental, spleen thymus, or esophagus tissue, nor in lung cancer.

The analysis also identified differential expression of a splice variant of SEQ ID NO:550, i.e., SEQ ID NO:552. When the two sequences were compared, it was found that SEQ ID NO:550 encodes a putative protein of 652 amino acids (SEQ ID NO:551), and molecular weight  
30 of 73,337 daltons. SEQ ID NO:552, in contrast, lacks an internal 74 base pairs, corresponding to

nucleotides 1307-1380 of SEQ ID NO:550. The deletion results in formation of a stop codon at the splice function, and a putative protein of 403 amino acids (SEQ ID NO:553), and molecular weight 45,839. The missing segment results in the putative protein lacking a PEST protein degradation sequence, thereby suggesting a longer half life for this protein.

5 In additional experiments, primers designed not to differentiate between SEQ ID NOS: 550 and 552 resulted in almost universal amplification (placenta being the only exception). In contrast, when primers specific for SEQ ID NO:552 were used differences were seen in normal pancreatic, liver, lung, heart, fetal brain, mammary gland, bladder, and adrenal gland tissue, where there was no expression of SEQ ID NO:552 found.

10 Northern blotting was also carried out for SEQ ID NOS: 544, 546, 550 and 552. These experiments employed the same commercially available RNA libraries discussed above were used.

Samples (2 ug) of polyA<sup>+</sup> RNA were analyzed from these samples, using random, <sup>32</sup>P labelled probes 300-360 nucleotides in length, obtained from PCR products. These probes were hybridized to the RNA, for 1.5 hours, at 68°C, followed by two washes at 0.1xSSC, 0.1% SDS, 15 68°C, for 30 minutes each time.

SEQ ID NOS:544 and 546 were again found to be universally expressed.

Further screening identified additional isoforms of SEQ ID NOS:544 and 550. These are set forth as SEQ ID NOS: 554, 556, 558 and 560. The isoform represented by SEQ ID NO:554 (translated as SEQ ID NO:555) is a naturally occurring splice variant of SEQ ID NO:544, found 20 in normal colon. SEQ ID NO:556 (translated as SEQ ID NO:557), which is an isoform of SEQ ID NO:550 (translated as SEQ ID NO:551), was found in brain tissue, primarily spinal chord and medulla. SEQ ID NO:558 (translated as SEQ ID NO:559), was found in normal kidney and in colon tumors, metastasized colon cancer, renal cancer, gastric cancer, and in colon cancer cell line Colo 205. It was not found in any normal tissue other than kidney.

25 The nucleic acid molecule whose nucleotide sequence set forth as SEQ ID NO:560 (translated as SEQ ID NO:561), is a further isoform of SEQ ID NO:552. It is similar to SEQ ID NO:558, except it contains a long nucleotide insert encoding a longer COOH terminus. It was expressed in normal bladder and kidney cells, and renal cancer cells. It was not expressed in colon cancer cells.

30 It is reported above that fourteen clones reacted with subsets of serum from both normal

and cancer patients, while twenty eight reacted with autologous sera only. These clones were sequenced, in accordance with standard, art recognized methods. Of the clones which reacted only with autologous sera, nine appear to be previously unidentified sequences. These are set forth as SEQ ID NOS: 562, 564, 566, 568, 570, 572, 574, 576 and 578. SEQ ID NO:562

5 (translated as SEQ ID NO:563) is 1445 nucleotides long, and shows some similarity to known sequences for myosin and tropomyosin. SEQ ID NO:564 (translated as SEQ ID NO:565), which is 1226 nucleotides long, contains a TPR motif. The sequence set forth in SEQ ID NO:566 (translated as SEQ ID NO:567) is 1857 nucleotides long, and shows similarity to cyclophilins. The nucleotide sequence set forth in SEQ ID NO:568 (translated as SEQ ID NO:569) is 1537  
10 nucleotides long, and shows similarity to murine gene 22A3, which has unknown function, but resembles an unconventional form of myosin, as well as an EST for heat shock inducible mRNA. As for the molecule set forth in SEQ ID NO:570 (translated as SEQ ID NO:571), it appears to resemble a nucleic targeting signal protein. SEQ ID NO: 572 (translated as SEQ ID NO:573) is 604 nucleotides long, and may encode a lysosomal protein. The molecule set forth in SEQ ID  
15 NO:574 (translated as SEQ ID NO:575) is 742 nucleotides long, and encodes a protein with an SH3 domain and which shows some similarity to GRB2 and human neutrophil oxidase factor. The molecule set forth in SEQ ID NO:576 (translated as SEQ ID NO:577) is 1087 nucleotides long, and encodes a protein which contains coiled core domains. The molecule set forth in SEQ ID NO:578 (translated as SEQ ID NO:579) is 2569 nucleotides long, shows some similarity with  
20 *Drosophila* homeotic material tudor protein, and has a DY(F)GN repeat.

Additional sequences were identified which were expressed in both normal sera and cancer cells. The sequence set forth in SEQ ID NO:580 (translated as SEQ ID NO:581), e.g., is 2077 nucleotides long, and was expressed by both colorectal cancer and normal cells. Analysis of the sequence showed that it possesses a nuclear targeting sequence. The molecule set forth in SEQ  
25 ID NO:582 (translated as SEQ ID NO:583) is 3309 nucleotides long, was expressed by colorectal cancer and normal cells, and is similar to heat shock protein 110 family members. The molecule presented in SEQ ID NO:584 (translated as SEQ ID NO:585) was expressed in a colon to lung metastasis, as well as by normal tissue. It is 2918 nucleotides in length. Analysis shows that it contains 2 zinc finger domains. The nucleotide sequence of SEQ ID NO:586 (translated as SEQ  
30 ID NO:587) was also expressed in a colon to lung metastasis, is 1898 nucleotides long, and is

also expressed by normal tissue. Specifically, the reactivity of the molecules was as follows:

Table 7

5	SEQ ID NO:	Normal Sera	Tumor Sera
		Reactivity	Reactivity
	580	2/16	2/16
	582	2/16	3/16
10	584	2/16	2/16
	586	2/8	1/16

A more extensive set of RT-PCR experiments were carried out to study the expression pattern of SEQ ID NOS: 550, 552, 558 and 560. The results follow.

15

Table 8: RT-PCR analysis of colon SEREX clones

	<u>normal tissue</u>	<u>SEQ ID NO.:550</u>	<u>SEQ ID NO.:552</u>	<u>SEQ ID NO.:558</u>	<u>SEQ ID NO.:560</u>
20	kidney	+	Negative	Negative	Negative
	colon	+	Negative	Negative	Negative
	small		Negative	Negative	Negative
	intest.	+	Negative	Negative	Negative
	brain	+	Negative	Negative	Negative
25	stomach	+	Negative	Negative	Negative
	testis	+	Negative	Negative	Negative
	pancreas	+	Negative	Negative	Negative
	lung	+	Negative	Negative	Negative
	liver	+	Negative	Negative	Negative
30	heart	+	Negative	Negative	Negative
	fetal		Negative	Negative	Negative
	brain	+	Negative	Negative	Negative
	mammary		Negative	Negative	Negative
	gland	+	Negative	Negative	Negative
35	bladder	+	Negative	Negative	Negative
	adrenal		Negative	Negative	Negative
	gland	+	Negative	Negative	Negative
	uterus	Negative	Negative	Negative	Negative
	skeletal		Negative	Negative	Negative
40	muscle	Negative	Negative	Negative	Negative
	PBL	Negative	Negative	Negative	Negative
	placenta	Negative	Negative	Negative	Negative

- 64 -

	spleen	Negative	Negative	Negative	Negative
	thymus	Negative	Negative	Negative	Negative
	esophagus	Negative	Negative	Negative	Negative
	<u>Tumor Tissue</u>				
5	renal cancer (4)	+ (2/4)	+ (2/4)	+ (2/4)	+ (2/4)
	colon primary tumors (10)	+ (10/10)	+ (10/10)	+ (10/10)	Negative
10	colon mets (4)	+ (4/4)	+ (4/4)	+ (4/4)	Negative
	breast cancer (6)	+ (3/6)	Negative	Negative	Negative
	lung cancer (6)	+ (6/6)	Negative	Negative	Negative
15	gastric cancer (1)	+	+	+	Not tested
	<u>colon cancer cell lines</u>				
	colo 205	+	+	+	Negative
	HT29	+	+	Negative	Negative
20	HCT15	Negative	Negative	Negative	Negative

**Example 8: Isolation and analysis of additional clones**

For the establishment of a cDNA library from human tissue total RNA was obtained from

25 0.5 g of a renal clear cell carcinoma and established according to the method of Chomzynski as described above. The mRNA was extracted from total RNA with oligo-dT-cellulose. The synthesis of the first strand cDNA was accomplished by the method described by Gubler and Hoffmann, *Gene* 25: 263 (1983) using RNase H and DNA polymerase I. For adaptation of the cDNA Klenow enzyme, adaptors with EcoRI restriction enzyme sites were ligated to the cDNA ends using T4 DNA

30 ligase (Ferretti L and Sgamerella V, *Nucl. Acids Res.* 9: 3695 (1981)). Following restriction enzymatic digestion with the enzyme XhoI, cDNA molecules of different length were separated using Sephacryl 400 and transfected into  $\lambda$ ZAPII phage vectors (Short JM et al., *Nucleic Acids Res.* 16: 7583 (1988)). The recombinant phage DNA was packaged into phages after ligation with packaging extracts and used for the transfection of *E. coli* bacteria. The titration of the library

35 resulted in  $1.8 \times 10^6$  recombinant primary clones. The total cDNA library was transfected in *E. coli* and amplified. The titer of the cDNA library after amplification was  $10^{11}$  plaque forming units per ml (pfu/ml). These transfected cells were used in experiments which follow.



In accordance with the invention as described above, identification of immunogenic material was achieved by using human sera which has been completely depleted of antibodies directed against antigens derived from native and lytic  $\lambda$  phage-transfected *E. coli* bacteria. To this end, the serum was absorbed, as follows.

5 *E. coli* bacteria of the strain XL1-blue were cultured in 50 ml LB medium overnight. After achieving an optical density of  $OD_{600} = 1.0$ , the bacteria were pelleted by centrifugation, resuspended in 5 ml phosphate buffered saline (PBS), and lysed by sonication. The bacterial lysate was bound onto a matrix of activated Sepharose, which was then put into a column and used for the absorption of the human serum. The serum was run over this column 10 times.

10 A culture of *E. coli* XL1 blue bacteria in the exponential growth phase was pelleted by centrifugation, transfected in 0.01 M magnesium sulfate with  $10^6$   $\lambda$ ZAPII phages without a recombinant insert and incubated in 5 ml LB medium for four hours. The lysate of the transfected bacteria was used in the same manner as the untransfected bacteria, with the human serum described supra being passed through the column an addition ten times.

15 To complete the depletion of the serum, interfering antibodies from lytically transfected *E. coli* bacteria were cultured on agar plates and their proteins were blotted onto nitrocellulose membranes after 10 hours of culture at 37°C. Following this, the serum which had been preabsorbed according to the above steps was transferred to the blotted nitrocellulose membrane, and the absorption procedure was repeated five times. The serum, which was processed in  
20 accordance with the invention, was totally depleted of antibodies directed against antigens derived from *E. coli* and phages.

In this, a renal cancer-specific antigen was identified via the following steps. Bacteria of the strain XL1 blue were transfected with recombinant phages derived from the described cDNA library and plated at a density of  $4-5 \times 10^3$  plaque forming units (pfu) per plate in LB-medium with  
25 isopropylthiogalactopyranoside ("IPTG"). After 12 hours of incubation at 37°C, nitrocellulose membranes were put on top of the cultures and culture plates were incubated for another four hours. This was followed by incubation of the nitrocellulose membrane for one hour in Tris-buffered saline (PBS) with 5% milk powder. After washing the nitrocellulose membranes three times in TBS, the stripped human serum secured following Example 2 was diluted 1:1000 in TBS/0.5% (w/v) milk  
30 power and incubated overnight with gentle shaking. After the incubation with the nitrocellulose

- 66 -

membrane the serum was removed and kept for additional testing. Following incubation with serum, the nitrocellulose membranes were washed three times in TBS, and incubated with a polyclonal alkaline phosphatase-conjugated goat anti-human IgG serum for one hour. Following this, the nitrocellulose membranes were washed repeatedly with TBS/0.01% (v/v Tween 20). The

5 reaction was developed using nitroblue tetrazolium chloride and bromochloro-indoyl-phosphate in TBS. The binding of human antibodies to the expressed protein became visible by a blue ring-formed color deposit on the nitro-cellulose membrane. The efficient preabsorption of the serum made it possible to develop the membrane at 37°C over several hours without compromising the quality of the test because of background reactivity caused by antibodies against *E. coli* and phage  
10 antigens.

Positive clones were localized on the agar plates, transferred into transfection buffer, and used for a second round of transfection and subcloning. A total of  $1.8 \times 10^6$  recombinant clones were subjected to screening and five different positive-reacting clones were identified.

Positive clones, i.e., those which had bound antibodies derived from the processed human  
15 serum, were subcloned to monoclonality by repeated rounds of transfection and testing of reactivity with the processed human serum. P-bluescript phagemids with the respective cDNA inserts were cloned by *in vivo* excision (Hay B and Short JM, *Strategies* 5: 16-19, 1992) from the  $\lambda$ ZAPII phage vectors and used for the transfection of *E. coli* SOLR bacteria. Plasmids were isolated from the bacteria after alkaline lysis with NaOH in a modification of the method of Birnboim HC and Doly J.  
20 *J. Nucl. Acids Res.* 7: 1513 (1979). The recombinant plasmid DNA was sequenced according to standard methods using M13-forward and M13-reverse oligonucleotides. The DNA sequence obtained and the resulting amino acid sequence were compared with nucleic acid and protein data banks (Gene Bank, EMBL, Swiss Prot). The sequencing of the cDNA inserts was continued using internal oligonucleotides. Analysis showed no homology with any sequences deposited in the data  
25 banks. The full length cDNA clone, referred to as SK313, was cloned with the RACE method (Frohman MA, Dush MK, Martin GR, *Proc. Natl. Acad Sci. USA* 85: 8998 (1988)), and had a carbonic anhydrase domain at the 5' end.

As a continuation of these experiments, RNA was isolated from a spectrum of malignant and normal human tissues and Northern blots were performed with labeled SK313 (also referred to as  
30 clone HOM-RCC-313). The Northern blot analysis demonstrated that the mRNA of clone HOM-

- 67 -

RCC-313 was overexpressed in 4 out of 19 renal cell carcinomas compared to normal kidneys. Very weak expression was found only in colonic mucosal tissue and in normal kidney. Expression in other tissues was not observed.

To determine the incidence of antibodies against antigens which are identified above,

5 allogeneic sera from healthy individuals and tumor patients were analyzed. To this end, the sera were processed as described above and depleted from antibodies against antigens derived from *E. coli* and phages. For the detection of antigen-specific antibodies, phages derived from reactive clones were mixed with non-reactive phages derived from the same cDNA library at a ratio of 1:10 and tested as described above for reactivity with antibodies in the human test serum. The serum  
10 which had been used for the identification of the antigen was used as a positive control. The non-reactive phages served as a negative control. A serum sample was positive for antigen reactive antibodies, if the expected percentage of the phage plaques showed a positive reaction. In the case of the renal cell carcinoma antigen represented by clone HOM-RCC-313, the analysis of a spectrum of human sera showed that only sera from renal cell carcinoma patients contained reactive  
15 antibodies. Sera from healthy controls and patients with other tumors did not contain such antibodies.

The cDNA for clone HOM-RCC-313 was excised from the plasmid DNA by digestion with the restriction enzyme EcoR1, was separated by agarose gel electrophoresis, followed by extraction from the gel. This was then used to create a vector which expresses a fusion protein with the  
20 bacterial protein anthranilate synthetase. A relevant fragment in the exact open reading frame was cloned into pATH plasmid vectors (Koerner et al., *Meth. Enzymol.* 194: 477 (1991)). Induction of protein expression was obtained after transformation of the plasmids into *E. coli* of strain BL21 as described (Spindler et al., *J. Virol.* 49: 132 (1984)). Expressed fusion proteins were separated by SDS gel electrophoresis, excised from the gel, eluted and freeze dried. Rabbits were immunized by  
25 subcutaneous injection with 100 µg of the lyophilisate combined with Freund's adjuvant according to standard procedures. Immunization was repeated three times at two-week intervals using incomplete Freund's adjuvant. The rabbit was bled and antiserum was obtained. The obtained antiserum was depleted from antibodies reactive with *E. coli* and phages as described above and tested for reactivity against the renal carcinoma antigen as described for the human serum.  
30 Reactivity was detected at dilutions of 1: >100,000.

Additional clones were identified from pancreatic cancer tumor specimen using the SEREX method of Sahin et al., (1995). A cDNA library was prepared and reacted with high titer IgG in sera of pancreatic carcinoma patients. A total of  $8 \times 10^5$  clones were screened with autologous serum, and  $4.5 \times 10^3$  clones were screened with three different allogeneic sera. Twenty three clones, representing

5 seven different transcripts were found. Four were previously unknown, unisolated genes. Of the remaining three, glycolytic enzyme aldolase A was found (SEQ ID Nos:799 and 800). Another molecule was "known" in that it was homologous to the rat eIF-5 gene (SEQ ID Nos:801 and 802), which is a eukaryotic translation initiation factor. The human eIF-5 gene was not previously known.

When hepatocellular carcinoma libraries were studied in the same way, a total of  $1.5 \times 10^6$   
10 clones were screened, and 98 positives were found. A total of 59 of these were sequenced, and corresponded to at least 20 different transcripts. Nine of these were assayed with allogeneic sera from hepatocellular cancer (HCC) patients and normal patients. High titered antibody was restricted to HCC patients. The majority of isolated sequences did not correspond to known molecules. Three which did were human albumin (SEQ ID Nos:803 and 804), senescence marker protein SMP30  
15 (SEQ ID NOs:805 and 806), and C3VS (SEQ ID NOs:807 and 808). The latter was overexpressed in 2 of 4 hepatocarcinoma tissues, as compared to normal. Expression of SMP30 was found to vary highly.

The methodology was combined with subtractive cDNA techniques when assaying leukemia cells (T-ALL). An antigen was found which was identical to a broadly expressed, DNA repair  
20 enzyme.

Further assays identified the known molecule galectin-9 (SEQ ID NOs:809 and 810), as being highly expressed on human macrophages and dendritic cells. Expression is upregulated during differentiation of monocytes to macrophages. Highest levels were found on monocyte derived, dendritic cells.

25 Fusion proteins "LD1-mFc" and "LD2-mFc" were constructed to help analyze galectin-9. These consist of murine IgG heavy chain fragments, and a lectin domain (LD1, or LD2), as the N-terminus. Analysis indicated that the C-terminal lectin domain binds to the surface ligands, while the cell surface ligands recognized by the C-terminal lectin domain of galectin-9 was expressed only in a small, subpopulation of dendritic cells.

30 Further analysis of ovarian cancer cells (500,000 clones, using the SEREX method described

above), identified previously known antigens MAGE-4 (SEQ ID Nos:811 and 812) and restin (SEQ ID Nos:813 and 814), and six other newly identified molecules.

Further experiments were carried out which involved restin. A variation of restin is known, i.e., "CLIP170", which was reported to mediate binding of endosomes to microlubules. It was found

5 that both resin and CLIP 170 are highly expressed in dendritic cells, and are involved in the formation and transport of macropinosomes, a feature of professional antigen presenting cells. Expression of restin was induced after 48 hours of culture of monocytes in GM-CSF/IL-4 supplemented medium. Highest levels were found in immature dendritic cells. When microlubile systems, which are essential for the activity of restin/CLIP-170 were disrupted, macropinocytosis  
10 was lost completely.

Further work with the methodology disclosed herein on glioma identified a clone encoding nm23-H2 protein (SEQ ID Nos:815 and 816). This clone corresponds to subunit B of nucleoside diphosphate kinase, which is implicated in tumor metastasis control. It is also known as PuF, a transcriptional factor, for c-myc proto-oncogenes. Antibodies against the protein were found in 1 of  
15 18 sera of brain malignancy patients, 3 of 20 melanoma patients, and 2 of 20 sera from healthy patients. When expression studies were carried out using RT-PCR, 25 of 28 brain tumor, and 4 or 5 meningioma tumor samples were found to express the gene.

#### **Example 9: Isolation and analysis of lung cancer clones**

20 A cDNA library was constructed from a case of moderately differentiated adenocarcinoma of the lung, obtained from the Department of Pathology at The New York Hospital. The library was constructed in a  $\lambda$ ZAP Express vector using a cDNA library kit (Stratagene, La Jolla, CA).

The cDNA library was screened with autologous patient's serum as described previously [Sahin, U. et al., *Proc Natl Acad Sci USA* 92:11810-3 (1995); Chen, Y.T. et al. *Proc Natl Acad Sci*  
25 *USA*. 94:1914-8 (1997)]. Briefly, the serum was diluted 1:10, pre-absorbed with transfected *E. coli* lysate, and a 1:10 dilution of the absorbed serum (final dilution of serum 1:100) was incubated overnight at room temperature with the nitrocellulose membranes containing the phage plaques. After washing, the filters were incubated with alkaline phosphatase-conjugated goat anti-human Fc  $\gamma$  secondary antibodies and the reactive phage plaques were visualized by incubating with 5-bromo-  
30 4-chloro-3-indolyl-phosphate and nitroblue tetrazolium. Phagemid clones encoding human

immunoglobulin sequences were subsequently eliminated during the secondary screening.

The reactive clones were subcloned, purified, and *in vitro* excised to pBK-CMV plasmid forms (Stratagene). Plasmid DNA was prepared using Wizard Miniprep DNA Purification System (Promega, Madison, WI). The inserted DNA was evaluated by EcoRI-XbaI restriction mapping, and clones representing different cDNA inserts were sequenced. The sequencing reactions were performed by DNA Services at Cornell University (Ithaca, NY) using ABI PRISM (Perkin Elmer) automated sequencers.

To evaluate the mRNA expression pattern of the cloned cDNA in normal and malignant tissues, gene-specific oligonucleotide primers for PCR were designed to amplify cDNA segments of 300-400bp in length, with the estimated primer melting temperature in the range of 65-70°C. All primers were commercially synthesized (Operon Technologies, Alameda, CA). RT-PCR were performed using 35 amplification cycles in a thermal cycler (Perkin Elmer) at an annealing temperature of 60°C.

Genomic DNA were extracted from cell lines and frozen tumor tissue. Following restriction enzyme digestion, the DNA was separated on a 0.7% agarose gel, blotted onto nitrocellulose filters, and hybridized to an a <sup>32</sup>P-labeled DNA probe at high stringency (65°C, aqueous buffer). Washing of the blot was also under high stringency conditions, with a final wash in 0.2XSSC with 0.2% SDS at 65°C.

To identify the 5'end of the mRNA transcripts, RACE (rapid amplification of cDNA ends) methodology was utilized using the Marathon cDNA amplification kit (Clontech) and adaptor-ligated testicular cDNA as the substrate. The PCR products, after separation by agarose gel electrophoresis, were cloned into the direct PCR cloning vector pGEM-T (Promega).

Single-strand conformation polymorphism (SSCP) analysis was performed to analyze cDNA from various tissues, using previously described protocols [Dracopoli, C.D. et al., New York: John Wiley and Sons, Inc. (1997)]. Briefly, PCR was performed with 5 µl RT product in a final volume of 25 µl, with 2µCi of α<sup>32</sup>P-dCTP (~3000 Ci/mmol, New England Nuclear) per reaction. The PCR conditions was as described for RT-PCR above. After the PCR, 1 µl of the mixture was diluted with 5 µl of denaturing buffer (95% formamide, 20 mM EDTA, 0.05% bromophenol blue, 0.05% xylene cyanol), heat-denatured at 98°C for 2 min, and electrophoresed through an 8% polyacrylamide gel with 10% glycerol. As controls, aliquots of the same samples were diluted with a standard non-

denaturing DNA loading dye and electrophoresed in parallel. The electrophoresis was performed at room temperature at a constant power of 10-12 watts. The gel was then dried and autoradiography performed for 15-24 hours with an intensifying screen.

#### 5 Identification of Immunoreactive cDNA clones

A cDNA expression library of  $1.42 \times 10^7$  primary clones was prepared from Lu15, a specimen of moderately differentiated adenocarcinoma of the lung and  $8 \times 10^5$  phage plaques were immunoscreened with absorbed autologous patient serum at 1:100 dilution. Excluding false-positive clones encoding immunoglobulin gene fragments, 20 positive clones were identified. These clones  
10 were purified and sequence analyzed. Comparisons of the sequences showed that these clones represented cDNAs from 12 distinct genes, designated NY-LU-1 through NY-LU-12 (Table 9). A homology search through the GenBank/EMBO databases revealed that 4 of the 12 genes corresponded to previously known molecules, and 8 others were unknown genes, with sequence identity limited only to short segments of known genes or to expressed sequence tags (ESTs).

15

Table 9: NY-LU clones

Gene Designation	Gene/Sequence Identity [Accession Number]	cDNA	Comments
NY-LU-1	Aldolase A (N and H type) [X06352]	Lu-15/24, 72, 83, 158, 219, 241	Human fructose, 1,6 diphosphate aldolase A. Expressed in muscle (M type), but also in most other tissues (N and H types). Levels increased in most lung cancers; released into blood upon trauma and in several cancers.
20 NY-LU-2	hASNA-1 [U60276]	Lu-15/26, 66	Human homolog of the ATP-binding ars A component of the bacterial arsenite transporter. Previously cloned by SEREX from a testicular library (Chen et al., unpublished). Ubiquitously expressed.
NY-LU-3	Annexin 1X [L19605]	LU-15/64	Homosapiens 56K autoantigen. Antibodies to Annexin 1X are found in multiple autoimmune diseases. ubiquitously expressed.

	NY-LU-4	Rip-1 [U55766]	Lu-15/65	Human HIV Rev-interacting protein. Expressed in B cells, monocytes and rhabdomyoma cells.
	NY-LU-5	Unknown [W61291, W92962, etc.]	Lu-15/80	Expressed ubiquitously (by RT-PCR).
	NY-LU-6	Unknown [none]	Lu-15/85	Sequence contains no ORF, expressed ubiquitously (by RT-PCR).
	NY-LU-7	Unknown [W23466, AA167732, etc.]	Lu-15/135,217	Expressed in neuron, pregnant uterus, lung ca., parathyroid tumors, etc.
5	NY-LU-8	Unknown [Z78323, N39225, etc.]	Lu-15/139	Expressed in fetal heart, retin, multiple sclerosis, etc.
	NY-LU-9	Unknown [W26569, AA036884, etc.]	Lu-15/145	Expressed in retina, pregnant uterus, fetal liver-spleen, etc.
	NY-LU-10	Unknown [M29204, etc.]	Lu-15/154	Expressed in colon, pancreas, pregnant uterus, fibroblasts, etc.
	NY-LU-11	Unknown [W23466, AA057400, etc.]	Lu-15/270	Expressed in retina, pregnant uterus, fetal heart, fetal liver-spleen, parathyroid tumors, etc.
	NY-LU-12	g16	Lu-15/251	Located at the 3p21 TSG locus (see text)

10

Of the 4 known genes, aldolase A (NY-LU-1; SEQ ID NOs:689 and 690) was most frequently isolated, representing 6 of 20 primary positive clones in the entire screening. NY-LU-2 (SEQ ID NO:691), represented by two isolates, was the human homolog of the ATP-binding arsA component of the bacterial arsenite transporter, a gene which has been shown to be ubiquitously expressed in various tissues [Kurdi-Haidar, B. et al., *Genomics* 36:486-91 (1996)]. NY-LU-3 (SEQ ID Nos:692 and 693) encodes annexin XI, which is a 56KD ubiquitously expressed antigen to which autoantibodies have been described in sera from patients with various autoimmune diseases [Misaki, Y. et al., *J Biol Chem* 269:4240-6 (1994); Misaki, Y. et al., *J Rheumatol.* 22:97-102 (1995)]. The last gene in this group, NY-LU-4 (SEQ ID NOs:694 and 695), codes for the human HIV Rev interacting protein Rip-1, which has been shown to be expressed in the monocyte cell line U937, the rhabdomyoma cell line RD, as well as in adherent monocytes and primary lymphocytes [Refaeli, Y.

20



et al., *Proc Natl Acad Sci USA* 92:3621-5 (1995)].

Of the eight unknown genes, 6 (NY-LU-5, 7, 8, 9, 10, 11; SEQ ID Nos:696, 698, 699, 700, 701 and 702/703, respectively) shared sequence identity with reported expressed sequence tags (EST), likely representing cDNA products derived from the same genes. These ESTs were derived

5 from various somatic tissues unrelated to lung, e.g., neuron, pregnant uterus, colon, endothelial cells, etc., suggesting that these genes are widely expressed in human tissues (Table 9), making them unlikely candidates for vaccine-based tumor immunotherapy. These clones were not further investigated. The only novel gene in this group, NY-LU-6 (SEQ ID NO:697), showed no sequence identity to deposited sequences in the public databases. The tissue expression pattern of this gene  
10 was evaluated by RT-PCR analysis using gene-specific primers and a normal tissue RNA panel consisting of lung, colon, kidney, liver, brain and testis. Results showed universal expression in these tissues, and this clone was not further analyzed.

NY-LU-12 is on TSG locus of chromosome 3p21.

15 The last gene in the unknown gene group, NY-LU-12, was represented by the immunoreactive clone Lu15-251. This clone, 1081bp in length, contained an uninterrupted open reading frame (ORF) of 952 bp, followed by a 129bp 3'untranslated region. No translation initiation codon was identified, indicating that this was a partial cDNA clone.

A sequence homology search revealed that this gene shared up to 30% homology with two  
20 different human proteins at its C-terminus (Fig. 1), LUCA15 and DXS8237E (GenBank accession numbers U23946, and P98175) and also shared homology to S1-1, the rat counterpart of DXS8237E [Inoue, A. et al., *Nucleic Acids Res.* 24:2990-7 (1996)]. LUCA15 was subsequently proven to be a gene immediately centromeric to NY-LU-12 on the TSG locus on chromosome 3p21 (see below and [Wei, M.H. et al., *Cancer Res.* 56: 2487-92 (1996)]). Our analysis of LUCA15 revealed the  
25 presence of a nuclear localization signal in the putative LUCA15 protein. DXS8237E, was located on chromosome Xp11.23 [Coleman, M.P. et al., *Genomics* 31:135-8 (1996)] and its rat homolog, S1-1, has been shown to be an RNA-binding protein [Inoue, A. et al., *Nucleic Acids Res.* 24:2990-7 (1996)].

Of particular interest, however, was that a short segment (92bp) at the 5' end of NY-LU-12  
30 was identical to a previously identified gene, g16 (GenBank accession number U50839), which was

mapped to chromosome 3p21.3 and was interrupted in the small cell lung cancer line NCI-H740.

To compare NY-LU-12 with g16, the full-length NY-LU-12 cDNA sequence was obtained from normal testicular mRNA through a combination of 5'RACE and direct PCR cloning strategies. The predominant cDNA form (SEQ ID No:707), excluding the poly A tail, is of 3591bp in length.

5 An open-reading-frame of 1123 amino acid residues (SEQ ID No:708) was identified (nt. 102-3470), with 101bp of 5' untranslated and 129bp of the 3' untranslated region. The nucleotide and amino acid sequences are shown in Fig. 2.

Comparison with the g16 sequence verified that these two are identical genes and mapped NY-LU-12 to *TSG* locus on 3p21. However, the reported g16 sequence, 2433 bp in length, lacks the  
10 5' end 110 bases which include the translational initiation codon at nucleotide 102, and also the 3' end 980 nucleotides of NY-LU-12. In addition, 74bp DNA segment (nt. 1587-1659 of NY-LU-12) was absent in the reported g16 sequence. Oligonucleotide primers flanking this 74 bp region were designed and used to amplify RNA from 1 normal lung, 5 lung cancer cell lines, and 6 lung cancer specimens. Two RT-PCR products were seen in every specimen, corresponding to the sizes of the  
15 two cDNA variants. It was thus concluded that this variation represents an alternate splicing event which occurs in both normal and cancerous lung tissues. Of interest, however, was the difference in the putative translational products resulting from this additional 74bp exon. In the absence of this exon, the open-reading-frame of NY-LU-12 would end in the termination codon at nt.1736, as reported for g16, with a total length of 520 amino acid residues (in contrast to 1123 residues in the  
20 longer transcript). Moreover, this shorter form would not encode the C-terminal portion of the NY-LU-12 protein, the segment responsible for the immunoreactivity of Lu15-251 to the autologous patient serum.

#### Additional cDNA variants of NY-LU-12

25 In the process of 5'RACE cloning of the full-length NY-LU-12, three minor forms of cDNA products were identified which varied in their transcriptional initiation site and in their exon usage in the 5' segment of this gene. These variants will be described as transcripts B, C, and D (SEQ ID Nos:709, 711 and 712). Fig. 3 shows the comparison of these transcripts to the predominant cDNA form (transcript A, see Fig. 2).

30 Transcript B (Fig. 3A, bottom) contains an additional exon of 208 base pairs, inserted at

nucleotide 145 of the NY-LU-12 sequence. The original ORF of NY-LU-12 is disrupted due to this inserted sequence, and the AUG initiation codon used by transcript A is thus unlikely to be used by this transcript. A new potential translational initiation site, however, is found within this new exon and would continue the translation into the ORF of transcript A. The final product would be a

5 protein of 1177 amino acids (SEQ ID NO:710), with the 69 residues at the N-terminus different from transcript A. Interestingly, this new exon encodes for a signal peptide not present in the transcript A (Fig. 3A, bottom), and it is possible that these two products are localized to different subcellular compartments.

Similar to transcript B, transcripts C and D both contained additional exon(s) not present in  
10 transcript A. Transcript C contained two extra exons in tandem and a length of 364bp, only one of which (137bp) was present in transcript D, Figure 3B. These extra exon(s), inserted at the same alternate splicing site as transcript B, disrupted the original ORF, and the only long ORF would initiate at nucleotide position 498 of NY-LU-12 (959 of transcript C, 635 of transcript D). Considering the long untranslated region at the 5' end, it is doubtful whether transcripts C and D are  
15 indeed translated *in vivo*.

Correlating with this variation of NY-LU-12 mRNA, Northern blot analysis showed several RNA species in normal tissues, ranging approximately from 3 to 4.4 Kb. The intensity of individual bands also appear to vary among different tissues, suggesting post-transcriptional tissue specific regulation of NY-LU-12 mRNA.

20

#### Features of NY-LU-12 and its putative gene product

Analysis of the NY-LU-12 amino acid sequence showed 20 inexact 6 amino acid repeats with a consensus sequence of D(F/Y)RGR(D/E) close to the N-terminus (Fig. 2). These repeats were separated by 4 to 6 amino acid intervals, which showed no apparent sequence homology  
25 among each other. This feature in primary sequence is distinctive among known proteins. Hydrophilicity plot revealed that this region, although hydrophilic in general, has regular hydrophobic turns, and these cycles of hydrophilicity changes correspond to the hexapeptide repeats. Although the significance of this characteristic is unclear at present, this segment of sequence is highly rich in arginine and aspartic acid, a feature shared by RNA binding proteins. Similar motifs,  
30 rich in arginine and aspartic acid residues, were found in other RNA-binding proteins [Witte, M.M.

- 76 -

et al., *Proc Natl Acad Sci USA* 94: 1212-7 (1997); Wilson, R. et al., *Nature* 368:32-8 (1994); Seraphin, B. et al., *Nature* 337:84-7 (1989); Takagaki, Y. et al., *Proc Natl Acad Sci USA* 89:1403-7 (1992)], e.g., RNA [Seraphin, B. et al., *Nature* 337:84-7 (1989)] hnRNA 3' end cleavage stimulation factor [Takagaki, Y. et al., *Proc Natl Acad Sci USA* 89:1403-7 (1992)], etc., indicating that NY-LU-

12 is likely to be an RNA-binding protein. Consistent with this, PROSITE analysis of the putative NY-LU-12 protein identified a bipartite nuclear localization signal between amino acids 1016-1032 and a 4-residue nuclear localization pattern (PRKR) at amino acid 604-607 (Fig. 2), suggesting that NY-LU-12 is a nuclear protein. Analysis for post-translational modification sites showed potential sites for tyrosine sulfation, amidation, as well as phosphorylation sites for protein kinase A, C, casein kinase II, and tyrosine kinase. A PEST region, peptide sequences consistently found among unstable proteins with short half lives, was identified at amino acids 897-928 (Fig. 2), implying NY-LU-12 as an unstable protein.

#### Southern blot analysis of NY-LU-12 in normal and tumor tissues

To investigate the status of NY-LU-12 in normal and tumor cells, Southern blot analysis was performed on 9 lung cancer cell lines (3 adenocarcinoma, 2 squamous, and 3 large cell anaplastic), Lu15 tumor DNA, and a colon cancer cell line HT29 (Fig. 4). (HT29 was included due to the finding of an EST identified in the GenBank, accession number AA079461, which appeared to be a fusion sequence between semaphorin IV gene and NY-LU-12.) Using a 1.1Kb cDNA probe (nucleotide 1095-2140) and HindIII digested DNA, the results showed that one of the two hybridizing bands was absent in NCI-H740, confirming that NY-LU-12 was partially deleted in this cell line. The breakpoint of this deletion, by using primers from different regions, was further defined to be between nucleotides 1433 and 1777 of NY-LU-12, with the 3' sequences homozygously deleted. Besides NCI-H740, however, no evidence of homozygous deletion was seen in any other tumor cell line sample or in LU15. The similar band intensities and identical sizes of the DNA signals in all specimens also argued against the possibility of a heterozygous deletion or translocation of this gene, at least in the region analyzed. No change was found in HT29, suggesting that the semaphorin IV/NY-LU-12 fusion sequence in the GenBank probably represents a cloning artifact.

SSCP and sequence analysis of NY-LU-12 in Lu15 tumor DNA.

The mapping of NY-LU-12 to the lung cancer *TSG* locus raised the possibility that an altered protein product due to mutational event may be the basis for the autologous immune recognition. This possibility was explored using DNA sequencing and single-strand confirmational

5 polymorphism (SSCP) analysis.

The DNA sequence contained in the immunoreactive clone Lu15-251 (nucleotide 2518-3599 of NY-LU-12) was obtained from the normal counterpart by RT-PCR cloning using autologous normal lung tissue, and no mutations were found when compared to Lu15-251.

RT-PCR SSCP was then used to analyze the entire NY-LU-12 gene, comparing Lu15 tumor  
10 tissue and autologous normal lung tissue. To encompass the whole sequence, 10 sets of primer pairs were designed, each amplifying a range of 205 to 603 bps. For products >400bps, a restriction enzyme digestion step was added prior to the electrophoresis step to further reduce the fragment sizes and increase the assay sensitivity. Results showed no reproducible changes between normal and tumor tissues, and thus no evidence of mutation in Lu15 tumor cDNA. A representative set of  
15 SSCP analysis is shown in Fig. 5.

Serological response to NY-LU-12 in lung cancer patient

The frequency of anti-NY-LU-12 response was examined among normal adult and patient sera using the phage plaque assay identical to the original immunoscreening procedure. Of 21  
20 absorbed sera from allogeneic lung cancer patients, one (Lu22) reacted strongly with the Lu15-251 plaque at 1:1000 dilution, and another (Lu7) also reacted at 1:1000, but only weakly. Nineteen other lung cancer patient sera were non-reactive, nor were the sera from 16 healthy donors, 15 colon cancer, 5 breast cancer, 1 renal cancer, 1 prostate cancer, 1 esophageal cancer, and 1 melanoma patients.

25

Example 10: Expression analysis of additional cancer associated nucleic acids

The clone RING 3 was isolated from breast SEREX analysis as LONY-Br-5 (see above). The gene was identified as homologous to the "bromodomain testis" gene (BRDT; GenBank accession number AF019085). Analysis of related genes identified BRDT as a gene expressed only  
30 in testis, which was then investigated by RT-PCR analysis as described above.

- 78 -

The primers used to perform RT-PCR had the following sequences:

BRDT F1: CAAGAAAGGCACTCAACAG (bp 543-563 of BRDT)

BRDT R1: TTCACTACTTGCTTTAACTGC (bp 776-797 of BRDT)

The meiotic protein H1T (Histone 1 Testis; GenBank accession number M60094) was

5 identified through a literature search for meiotic proteins (testis specific expression).

The primers used to perform RT-PCR had the following sequences:

H1F1: TGCCGAACCTCTCTGTGTC (bp 116-135 of H1T)

H1R1: GCTTCGTGTAGATTTAGGAATC (bp 344-366 of H1T)

10 Table 10: RT-PCR analysis

	<u>Normal Tissue</u>	<u>BRDT</u>	<u>H1T</u>
	mammary gland	-	-
	liver	-	-
15	small intestine	-	-
	brain	-	+/- (very weak)
	lung	-	-
	fetal brain	-	-
	placenta	+	+
20	kidney	-	-
	skeletal muscle	-	-
	pancreas	-	-
	adrenal gland	-	-
	heart	-	-
25	thymus	-	-
	uterus	-	-
	prostate	-	+/- (very weak)
	spleen	-	-
	Testis	+	+

30

	<u>Tumor Tissue</u>	<u>BRDT</u>	<u>H1T</u>
	Colon	0/6	0/6
35	Breast	0/6	6/6+
	Melanoma	0/12	3/12+
	Lung	8/26+	4/26+
	Renal	0/2	0/2
	Ovary	0/2	0/2
40	Esophageal	0/1	0/1

- 79 -

Gastric	0/1	0/1
Bladder	0/2	0/2

Lung cancer specific expression of BRDT was observed (see table above). BRDT was  
 5 expressed only in normal testis and possibly in placenta. The expression analysis of H1T revealed  
 that all breast tumor samples (6 of 6) and ~30% lung cancers and melanoma tissue samples  
 expressed H1T. H1T was expressed in normal testis and possibly in placenta and brain.

#### **Example 11: allogeneic serotyping**

10 To confirm the cancer associated expression of SEREX clones, allogenic sera screening of  
 gastric cancer patients' sera was conducted. Sera from normal patients (gastritis) was used as a  
 control for expression of the clones in non-gastric cancer. The screening procedure used was as  
 described above for the SEREX screening, except for the absorption of anti-bacterial and  
 anti-bacteriophage antibodies. The modifications were as follows.

15 Serum from a stomach cancer patient or a normal individual was diluted to 1:10 in TBS (Tris  
 buffered saline; final volume 5 ml) and passed through a column (BIO-RAD Poly-Prep  
 Chromatography Column, Hercules, CA, USA) containing 0.5 ml Sepharose-4B cross linked to E.  
 coli Y1090 lysate and 0.5 ml Sepharose-4B cross linked to E. coli BNN97 (5 Prime 3 Prime, Inc,  
 Boulder, CO, USA). After repeating the column chromatography 10 times, serum was then diluted  
 20 to 1:100 in TBS containing 1% BSA and 0.02% sodium azide. To remove antibodies to bacteria and  
 bacteriophages further, 10 ml absorbed serum was incubated overnight with a 82 mm nitrocellulose  
 membrane on which XL-1 Blue MRF' bacteria and lambda ZAP Express phages (Stratagene, La  
 Jolla, CA USA) were immobilized. The serum was stored at - 80°C until use. For allogeneic  
 typing, an equal numbers of positive phage and negative phage were mixed and plated and processed  
 25 by the standard SEREX screening procedure.

The results of the allogenic screening experiments follow:

**Table 11: Allogenic Sera Screening of SEREX Sequences from Gastric Patients**

	Sequence		Isolated in Serex Patients	Allogenic Serotyping Gastric Cancer Sera	Allogenic Serotyping Normal Sera
	Gene/Clone	Number			
	RPB-J H-2K binding factor		SM1	6/12	6/16
5	Telomeric repeat binding protein		SM1	1/12	0/16
	Ser/Thr protein kinase		SM1	1/12	0/16
	SRY interacting protein-1		SM1	2/12	1/16
	Sterol carrier protein X		SM1	2/12	0/16
10	Archain		SM1	1/12	1/16
	HEM-1		SM1	2/12	1/16
	Id-1 helix-loop-helix protein		SM1	1/12	0/16
15	helix-loop-helix transcription factor		SM1	1/12	0/16
	Follistatin related precursor protein		SM1,CK, KM	6/12	0/16
	Translation initiation factor eIF-4gamma		SM1,SS1, KM	5/12	2/16
20	M phase phosphoprotein I		SM1,SS1	8/12	5/16
	Lysal tRNA synthase		SM1	1/12	0/16
	Gelsolin		SM1	4/12	0/16
	Zinc finger protein		SM1	1/12	1/16
	Goliath		SM1	2/12	1/16
25	zhx-1		SM1	1/12	1/16
	SG24		SM1,SS1, KM	5/12	0/16
	SG132		SM1	3/12	0/16
	S553		SM1	7/12	7/16
	S134		SM1	3/12	0/16
30	S328		SM1	2/12	1/16
	S365		SM1, KM	2/12	0/16



- 81 -

	FKBP25		KM, SS1	5/12	0/16
	Pros-27		KM, CK	3/12	1/16
	BS4		KM	1/12	1/16
	GnRH-II		KM	1/12	0/16
5	CTBP		KM	1/12	0/16
	ETF		KM	3/12	1/16
	KIAA0438		KM	1/12	5/16
	KIAA0367		KM	4/12	3/16
	APK1		KM	2/12	0/16
10	IPP		KM	1/12	0/16
	Tropomyosin		KM	1/12	0/16
	p63		KM	1/12	0/16
	KIAA0181		KM	1/12	0/16
	KIAA0349		KM	1/12	0/16
15	RPB1		KM	5/12	9/15
	PPIM		KM	1/12	-
	EB virus		KM	3/12	-
	G.KM073		KM	6/12	-
	G.KM403		KM	1/12	-
20	KM192		KM	1/12	-
	KM294		KM	1/12	-
	KM362		KM	1/12	-
	KM031		KM	1/12	-
	KM081		KM	3/12	-
25	KM201		KM	1/12	-
	KM1496		KM	1/12	-
	KM334		KM	1/12	-
	KM313		KM	1/12	-
	E-cad/Y		CK	1/12	0/16
30	IPBP		SS1	1/4	-
	OS-9		SS1	1/4	-

Kinesin light chain		SS1	1/4	-
---------------------	--	-----	-----	---

The screening results shown above confirm the association of the SEREX clones with cancer. There is a higher correlation of cancer and the expression of certain clones, in particular, follistatin related precursor protein, the translation initiation factor eIF-4gamma, the unknown sequence SG24, the FK506-binding protein 25, and the unknown sequence G.KM073. These clones are well suited to serve as diagnostic indicators of disease and as targets for therapeutics (e.g., vaccine compositions) development.

#### 10 **Example 12: Preparation of recombinant cancer associated antigens**

To facilitate screening of patients' sera for antibodies reactive with cancer associated antigens, for example by ELISA, recombinant proteins are prepared according to standard procedures. In one method, the clones encoding cancer associated antigens are subcloned into a baculovirus expression vector, and the recombinant expression vectors are introduced into appropriate insect cells. Baculovirus/insect cloning systems are preferred because post-translational modifications are carried out in the insect cells. Another preferred eukaryotic system is the *Drosophila* Expression System from Invitrogen. Clones which express high amounts of the recombinant protein are selected and used to produce the recombinant proteins. The recombinant proteins are tested for antibody recognition using serum from the patient which was used to isolated the particular clone, or in the case of cancer associated antigens recognized by allogeneic sera, e.g. certain breast cancer and gastric cancer associated antigens, by the sera from any of the patients used to isolate the clones or sera which recognize the clones' gene products.

Alternatively, the cancer associated antigen clones are inserted into a prokaryotic expression vector for production of recombinant proteins in bacteria. Other systems, including yeast expression systems and mammalian cell culture systems also can be used.

#### **Example 13: Preparation of antibodies to cancer associated antigens**

The recombinant cancer associated antigens produced as in Example 12 above are used to generate polyclonal antisera and monoclonal antibodies according to standard procedures. The antisera and antibodies so produced are tested for correct recognition of the cancer associated

antigens by using the antisera/antibodies in assays of cell extracts of patients known to express the particular cancer associated antigen (e.g. an ELISA assay). These antibodies can be used for experimental purposes (e.g. localization of the cancer associated antigens, immunoprecipitations, Western blots, etc.) as well as diagnostic purposes (e.g., testing extracts of tissue biopsies, testing for the presence of cancer associated antigens).

---

**Example 14: Expression of cancer associated antigens in cancers of similar and different origin.**

The expression of one or more of the cancer associated antigens is tested in a range of tumor samples to determine which, if any, other malignancies should be diagnosed and/or treated by the methods described herein. Tumor cell lines and tumor samples are tested for cancer associated antigen expression, preferably by RT-PCR according to standard procedures. Northern blots also are used to test the expression of the cancer associated antigens. Antibody based assays, such as ELISA and western blot, also can be used to determine protein expression. A preferred method of testing expression of cancer associated antigens (in other cancers and in additional same type cancer patients) is allogeneic serotyping using a modified SEREX protocol (as described above for gastric clones).

In all of the foregoing, extracts from the tumors of patients who provided sera for the initial isolation of the cancer associated antigens are used as positive controls. The cells containing recombinant expression vectors described in the Examples above also can be used as positive controls.

The results generated from the foregoing experiments provide panels of multiple cancer associated nucleic acids and/or polypeptides for use in diagnostic (e.g. determining the existence of cancer, determining the prognosis of a patient undergoing therapy, etc.) and therapeutic methods (e.g., vaccine composition, etc.).

**Example 15: HLA typing of patients positive for cancer associated antigen**

To determine which HLA molecules present peptides derived from the cancer associated antigens, cells of the patients which express the cancer associated antigens are HLA typed. Peripheral blood lymphocytes are taken from the patient and typed for HLA class I or class II, as

well as for the particular subtype of class I or class II. Tumor biopsy samples also can be used for typing. HLA typing can be carried out by any of the standard methods in the art of clinical immunology, such as by recognition by specific monoclonal antibodies, or by HLA allele-specific PCR (e.g. as described in WO97/31126).

**Example 16: Characterization of breast cancer associated antigen peptides presented by MHC class I and class II molecules.**

Antigens which provoke an antibody response in a subject may also provoke a cell-mediated immune response. Cells process proteins into peptides for presentation on MHC class I or class II molecules on the cell surface for immune surveillance. Peptides presented by certain MHC/HLA molecules generally conform to motifs. These motifs are known in some cases, and can be used to screen the breast cancer associated antigens for the presence of potential class I and/or class II peptides. Summaries of class I and class II motifs have been published (e.g., Rammensee et al., *Immunogenetics* 41:178-228, 1995). Based on the results of experiments such as those described in Example 15, the HLA types which present the individual breast cancer associated antigens are known. Motifs of peptides presented by these HLA molecules thus are preferentially searched.

One also can search for class I and class II motifs using computer algorithms. For example, computer programs for predicting potential CTL epitopes based on known class I motifs has been described (see, e.g., Parker et al., *J. Immunol.* 152:163, 1994; D'Amato et al., *Human Immunol.* 43:13-18, 1995; Drijfhout et al., *Human Immunol.* 43:1-12, 1995). HLA binding predictions can conveniently be made using an algorithm available via the Internet on the National Institutes of Health World Wide Web site at URL <http://bimas.dcrt.nih.gov>. Methods for determining HLA class II peptides and making substitutions thereto are also known (e.g. Strominger and Wucherpennig (PCT/US96/03182)).

The lung cancer SEREX clone polypeptides NY-LU-12 and NY-LU-12B (variant B), SEQ ID NOs: 708 and 710, were subjected to the HLA binding peptide analysis described above, using the NIH website, to identify HLA binding peptides for several common HLA molecules (HLA-A1, A2, A3, A24, B7, B44, and B52). The results are listed below in Table 12.

Table 12: Identification of HLA binding peptides in lung SEREX clones

- 85 -

		amino acids of		
HLA	peptide	NY-LU-12 protein	SEQ ID NO	
5	A1	NVEE-HSFSY	67 - 75	713
		PVDP-NILDY	287 - 295	714
		DTDY-RSMEY	398 - 406	715
10	A2	SLLE-DAIGC	506 - 514	716
		TLMI-QDKEV	521 - 529	717
		YVSSLDFWYC	533 - 542	718
		VIVEVLEPYV	671 - 680	719
		KLTD-WNKLA	948 - 956	720
		QLSDLHKQNL	975 - 984	721
		KQSEQELAYL	991 - 1000	722
		KLVDKEDIDT	1042 - 1051	723
15		VMFA-RYKEL	1114 - 1122	724
20	A3	QMFG-YGQSK	417 - 425	725
		GMPVKNLQLK	481 - 490	726
		GLPE-EEEEIK	823 - 831	727
		LLCRRQFPNK	958 - 967	728
25	A24	EYRD-VDHRL	405 - 413	729
		GYVC-VEFSL	499 - 507	730
		DYGY-VCVEF	497 - 505	731
		WYCKRCKANI	540 - 549	732
		TYPQPQKTSI	574 - 583	733
		IYRSTPPEVI	663 - 672	734
		HYYQ-GKKYF	754 - 762	735
		VYVP-QDPGL	816 - 824	736
30	B7	WNRDYPPPPPL	26 - 35	737
		MPPV-DPNIL	285 - 293	738
		TARD-AQRDL	432 - 440	739
		GPSEEKPSRL	448 - 457	740
35		TPPEVIVEVL	667 - 676	741
		RVMFARYKEL	1113 - 1122	742
40	B44	REMG-SCMEF	272 - 280	743
		EEQSSDAGLF	376 - 385	744
		KEYN-TGYDY	490 - 498	745
		TEAQELITY	566 - 575	746
		VEALRVVKIL	710 - 719	747
		GEYG-GDSYD	906 - 914	748
		LERREREGKF	1000 - 1009	749

- 86 -

B52	RQDGESKTIM	650 - 659	750
	TPPEVIVEVL	667 - 676	751
	YGFIDLDSHV	701 - 710	752
	RQFP-NKEVL	962 - 970	753

5

---

**NY-LU-12B (variant B)**

A1	NVEE-HSFSY	121 - 129	754	
10	PVDP-NILDY	341 - 349	755	
	DTDY-RSMEY	452 - 460	756	
A2	WQSA-RFYYL	41 - 49	757	
	SLLE-DAIGC	560 - 568	758	
15	TLMI-QDKEV	575 - 583	759	
	YVSSLDFWYC	587 - 596	760	
	VIVEVLEPYV	725 - 734	761	
	KLTD-WNKLA	1002 - 1010	762	
	QLSDLHKQNL	1029 - 1038	763	
20	KQSEQELAYL	1045 - 1054	764	
	KLVDKEDIDT	1096 - 1105	765	
	VMFA-RYKEL	1168 - 1176	766	
A3	QMFG-YGQSK	471 - 479	767	
25	GMPVKNLQLK	535 - 544	768	
	GLPE-EEEIK	877 - 885	769	
	LLCRRQFPNK	1012 - 1021	770	
A24	YYLN-ATDVL	47 - 55	771	
30	FYYLNATDVL	46 - 55	772	
	EYRD-VDHRL	459 - 467	773	
	GYVC-VEFSL	553 - 561	774	
	DYGY-VCVEF	551 - 559	775	
	WYCKRCKANI	594 - 603	776	
35	TYPQPQKTSI	628 - 637	777	
	IYRSTPPEVI	717 - 726	778	
	HYYQ-GKKYF	808 - 816	779	
	VYVP-QDPGL	870 - 878	780	
40	B7	WNRDYPPPPL	80 - 89	781
	MPPV-DPNIL	339 - 347	782	
	TARD-AQRDL	486 - 494	783	
	GPSEEKPSRL	502 - 511	784	
	TPPEVIVEVL	721 - 730	785	
45	RVMFARYKEL	1167 - 1176	786	

- 87 -

5	B44	SEAWSSNEKF	59 - 68	787
		REMG-SCMEF	326 - 334	788
		EEQSSDAGLF	430 - 439	789
		KEYN-TGYDY	544 - 552	790
		TEAKQELITY	620 - 629	791
		VEALRVVKIL	764 - 773	792
		GEYG-GDSY	960 - 968	793
10	B52	LERREREGKF	1054 - 1063	794
		RQDGESKTIM	704 - 713	795
		TPPEVIVEVL	721 - 730	796
		YGFIDLSHV	755 - 764	797
		RQFP-NKEVL	1016 - 1024	798

- 15 Likewise, other clones identified herein can be analyzed for the presence of candidate HLA binding peptides using no more than routine experimentation.

**Example 17: Identification of the portion of a cancer associated polypeptide encoding an antigen**

- 20 To determine if the cancer associated antigens isolated as described above can provoke a cytolytic T lymphocyte response, the following method is performed. CTL clones are generated by stimulating the peripheral blood lymphocytes (PBLs) of a patient with autologous normal cells transfected with one of the clones encoding a cancer associated antigen polypeptide or with irradiated PBLs loaded with synthetic peptides corresponding to the putative protein and matching
- 25 the consensus for the appropriate HLA class I molecule (as described above) to localize an antigenic peptide within the cancer associated antigen clone (*see, e.g., Knuth et al., Proc. Natl. Acad. Sci. USA* 81:3511-3515, 1984; van der Bruggen et al., *Eur. J. Immunol.* 24:3038-3043, 1994). These CTL clones are screened for specificity against COS cells transfected with the cancer associated antigen clone and autologous HLA alleles as described by Brichard et al. (*Eur. J. Immunol.* 26:224-230,
- 30 1996). CTL recognition of a cancer associated antigen is determined by measuring release of TNF from the cytolytic T lymphocyte or by <sup>51</sup>Cr release assay (Herin et al., *Int. J. Cancer* 39:390-396, 1987). If a CTL clone specifically recognizes a transfected COS cell, then shorter fragments of the cancer associated antigen clone transfected in that COS cell are tested to identify the region of the gene that encodes the peptide. Fragments of the cancer associated antigen clone are prepared by

exonuclease III digestion or other standard molecular biology methods. Synthetic peptides are prepared to confirm the exact sequence of the antigen.

Optionally, shorter fragments of cancer associated antigen cDNAs are generated by PCR. Shorter fragments are used to provoke TNF release or  $^{51}\text{Cr}$  release as above.

---

5        Synthetic peptides corresponding to portions of the shortest fragment of the cancer associated antigen clone which provokes TNF release are prepared. Progressively shorter peptides are synthesized to determine the optimal cancer associated antigen tumor rejection antigen peptides for a given HLA molecule.

10        A similar method is performed to determine if the cancer associated antigen contains one or more HLA class II peptides recognized by CTLs. One can search the sequence of the cancer associated antigen polypeptides for HLA class II motifs as described above. In contrast to class I peptides, class II peptides are presented by a limited number of cell types. Thus for these experiments, dendritic cells or B cell clones which express HLA class II molecules preferably are used.

15

#### EQUIVALENTS

Those skilled in the art will recognize, or be able to ascertain using no more than routine experimentation, many equivalents to the specific embodiments of the invention described herein. Such equivalents are intended to be encompassed by the following claims.

20        All references disclosed herein are incorporated by reference in their entirety.

We claim:



- AA683066, AA446279, AA332363, T09328, R80982, AA069486, AA410842, C18527, AA293033, H12730, AA287344, AA029631, R83063, AA061290, AA185993, AA880204, AA499308, AA183172, AA242360, AA792388, AA175587, AA277140, AA880395, AA899046, AA859550, C35363, C35702, C32682, F14140, T18049, C83149, T45787, 5 AA924623, D47525, Z30723, AA897884, AA042465, AI009871, AA875198, C83016.

## SEQ ID NO. 7:

- 10 X74116, AL022148, AC004548, AC000352, Z11664, Z78065, Z74028, AE000163, AE000750, X74229, D90700, R59414, AA176708, W02568, AA354664, R43017, AA973553, F10008, D61827, AA826300, Z41398, T77572, R40189, H85823, W86541, T17276, AA679337, X83357, AA184845, AA416260, AA475603, AA388692, AA764445, AA388689, AA219880, AA290020, AA388507, AA387267, C86741, AA414436, AA451259, AA413796, AA930916, 15 AA793690, AA619447, AA062257, AA522026, AA816247, AA892032, AA817702, H33461, AA925507, AA849449, AI029236, AA247069, AA697975, AA882508, AA893258, AA698410, AA891755, AA698227, AA892782, AA899328, T04373, AA567522, AA698408, AA202615, AA141016, AA697974, AA697998, C61176, D69691, AI030205, AA586054.

20

## SEQ ID NO. 8:

- U08218, L38909, Y11095, AC002431, Z23069, S77418, U39060, L38580, AF053367, Z36506, M18102, J03624, AA102264, AA730686, H47968, AA357170, AA130974, C06054, 25 AA626429, F00559, AA604528, AA383348, AA040127, N84965, D54884, D54883, R94309, AA373184, AA128091, W68194, H58283, R76347, AA343938, AA305144, AI049611, AA384516, AA720553, N57395, R97387, D52674, AA169408, H66293, AA456362, T74258, AA730145, AA101952, N86388, AA355003, AA307640, AA385679, AA354542, N99075, N83528, H87678, R84494, R35720, AA670111, AA186452, W32370, D55392, W05161, 30 AA641280, AA120503, C77063, AA146393, AA620177, AA509478, C77481, AA427148, AA474531, W83304, AA207424, AA763436, AA958473, AA799243, AA493061, AA967792, AA145256, AA089338, AA756259, AA789767, AA980112, AA866640, AA914516, AA821675, AA466770, AA015387, AA816036, AA246546, AA941789, AA955779, AA997768, AA997534, T43805, AA956150, T18836, T23333, AA525666, T18787, AA800483, 35 C64685, AA851367, C91730, AA143899, T23399.

## SEQ ID NO. 9:

- 40 AP000056, U43491, Z74919, L81498, Z94054, AC002503, L81499, AA740188, AA630241, AA974724, AA806907, N88859, N98242, H12649, R06485, R06511, AA546258, C76846, AA208416, AA959219, AA276381, W10055, AA462844, AA444278, W13447, W97802, AA542324, AA137880, AA269331, AA175695, W59029, AA003372, AA146233, AI045761, C93154, C94084, C94208, D68027, C12780, AA687005, AA080598, C12876, C12390, 45 AA848674, AA924440, T15031, AA451569, H35524.

## SEQ ID NO. 10:

U25640, AA127328, H24207, H08275, AA283063, AA826096, AA417382, AA464874, W05562, AA453370, N51211, AA495859, R33871, H00927, AA623997, AA220442, AA178568, AA605493, AA394557, AA956116, AA999037, AA818246.

5

SEQ ID NO. 11:

- AB001740, AF039956, AA581972, AA594539, AA236870, AA464410, AA237069, AA694199, AI038896, AA167314, AA577381, AA430117, N23143, R53610, W37647,
- 10 AA724229, AA313202, AA860618, W16866, AA134966, AA255556, AA305224, R50528, AA844913, W32042, W37383, AA908394, W93357, W31353, R55254, N79251, AA456077, AA477700, AA477701, AA989005, AA455580, N32722, N22935, R50622, AA135047, R51941, T34020, T30416, T32309, AA883332, W93445, AA166984, AA026749, T08224, AA255572, W03768, AA033670, W31880, AA772832, AA230974, AA511207, W82274,
- 15 AA230365, AA671085, AA511230, AA606681, AA023735, AA444535, W98518, W14718, W85455, AA980318, AA137525, AA035840, AA692158, AA007919, W48013, AA444534, AA981497, AA002566, W48089, W99869, AA960396, AA960580, AA145259, AA145683, AA388960, AA389941, AA266272, AA145124, AA267212, AA959753, AA407991, A175818, AA943997, AA899476, AA899756, AA943998, AA955446, AA012783, AA924956,
- 20 AA892219, AA955331, AI012225, AA891436.

SEQ ID NO. 12:

- 25 U72994, AC004022, AF043493, U43252, U43251, U81830, U58105, U68242, Z93242, AL009029, M29872, U12980, M81118, M30471, Z56258, AF012943, AC004080, AC002563, AF024533, AF002991, Z63771, AP000042, AF064863, U80017, AC004087, Z55235, L05920, AA508139, N90748, AA450240, AA948158, AA828938, AA165115, AI003312, AA436633, AA419100, AA743442, AA961990, AA885286, AA861312, T84801, AI040166, AA494115,
- 30 AA652324, AA181105, AA095541, R59256, AA503712, AA700364, AA603821, T60326, AA779097, AI023884, AA603785, H79111, W39526, AA506607, W94361, N66078, R01605, H22694, W86762, W99303, AA745640, AA678312, AA431870, W41927, AA874648, C92734, C23102, C53080, C91168, D65098, C32959, C50029, M80125, C34452, C83862, C24659, T21473, AA874720, C06696, W43071, AI043300, C53907.

35

SEQ ID NO. 13:

- X94232, U90437, AC003052, U59809, AC004001, M95396, Z67884, X77486, U70051,
- 40 X14805, AF022976, Z83823, X77485, J04171, AF036007, U05768, U88315, Z98048, AF036009, AC005179, U41277, U32517, AE001138, D64060, M84387, H29022, AA814221, N26314, AA935912, AA873506, AA608576, AA453605, AA232674, Z38725, AA772022, AA025212, AA318330, R48115, AA234084, H18508, N64543, AA970508, R36933, AA306944, H49559, AA325555, H85834, H89988, AA343974, AA648643, H65664, T62713,
- 45 H16554, N21122, AA351037, AA484621, AA221492, AA259314, C76383, C76336, AA607924, C76394, AA408562, AA921258, AI006352, W41405, AA153317, AA015435, AA027405, AA794066, AA498038, AA184222, AI011068, AA859614, AA899776, AA955080, AA799674, AA849652, AI009788, AA900928, AI007950, AA109392, AA753592, U92780, AA957632, AA567950, AI009495.

## SEQ ID NO. 14:

AC000075, U66140, R14195, AA220229, T31199, R19104, R19148, Z46126, AA417619,  
5 Z45284, H14105, R84666, AA090321, AA350108, W52840, R48497, R13097, T66255,  
W44467, AA247676, AA198489, AA388175, AA261453, AA237111, AA790730, AA162394,  
AA816498, AI013729, AA684961, AA979759.

## 10 SEQ ID NO. 15:

AF069301, D10651, U11419, U11287, M91562, U90278, U72724, X57855, X79424, M16512,  
M64542, Z14152, AF016667, L01488, Z75955, AF024504, M13968, W67775, AA934587,  
AA617696, AA913577, AA628682, W74527, AA969876, AA995606, AA622402, AA027090,  
15 AA620556, AA085733, AA187157, AI031865, AA972318, AA897169, W79046, AA531124,  
AA733183, T90909, Z25096, AA721771, AA115089, T49643, R00622, N93780, R00626,  
AA365494, T71475, N74066, AA027130, T83325, AA115569, AA658299, T55344, T83700,  
AA426250, AA393863, AA282967, R08138, AI000112, AA807574, AA077926, AA397527,  
W87761, AA243026, R56368, H16371, AA958697, AA003997, AA008542, AA036229,  
20 AA397074, AA250467, AA260498, AA968175, AA253686, AA727785, AI019478, AA474978,  
AA543461, AA990281, AA245791, AA617042, AA015355, AA983015, AA982200,  
AA120064, AA462778, AA242574, AA986993, AA986911, AA882490, AA223057,  
AA543989, W65528, AA848318, AA874979, AA800547, AA945302, AA140994, AA991110,  
AA851120.

25

## SEQ ID NO. 16:

Z68106, X14199, M14872, Z63497, M31670, AC002123, Z63498, AA280070, AA215687,  
30 H93207, AA070367, W95534, AA682436, AA741066, AA173269, AA641255, AA215688,  
AA724798, N23259, AA442155, AA634563, AA074699, AA642322, AA861347, AA283655,  
AI002587, W95419, AA357042, AA761253, AA197191, T54480, AA133029, AA378991,  
AA114599, AA219925, AA174327, AA003800, C86661, AA990433, AA277014, AA445101,  
AA671205, AI036728, AA241221, AA213304, AI035350, W08919, W36663, AA061406,  
35 AA144736, AA240583, AI006563, AA980152, AA250075, AA088967, W17488, AA098269,  
W10200, AA543712, AA755434, AI012680, AA820868, AA949519, AA391130, AA202576,  
AA979150, AA012391, AA539472.

## 40 SEQ ID NO. 17:

J03592, M24103, AB009386, U44832, J02966, M24102, U27316, U10404, X70847, D12771,  
D12770, J02683, J03591, U27315, M76669, U39779, M13783, J04982, X74510, X61667,  
M57424, L78810, AC004000, Z75206, U68723, Z75207, AF009661, X53264, J03320, U66060,  
45 AB011800, M77194, AE000021, L07268, AE000936, U03115, AF009663, AA582128,  
AA916851, AA576667, AA915921, AA916853, N58735, AA428106, AA427849, AI024255,  
H69807, H11315, N36980, H69597, AA826334, W05080, N37044, AA385873, N48222,  
AA394173, AA837522, AI002511, AA292870, T96300, AA360716, AA379604, AA862844,  
AA430455, AA479859, AA133899, AA669954, H92542, AA095298, AA995794, AI003667,

- AA320235, AA864472, T16369, AA588049, AA399159, AA148239, AA143432, AA962682, AA062646, AA335060, AA579762, R10999, AA858417, AA603170, AA292786, AA374867, AA191035, AA191500, AA599385, AA190396, T96301, AA535568, AA857439, AA977124, AA159515, AA719754, R61295, AA079690, AA577057, AA171709, AA552769, AA456451, N26291, AA132216, AA070196, H45529, AA160327, AA970357, AA477493, AA421297, 5 AA017413, AA857677, T51717, AA081099, AA977849, N80148, AA335988, AA908779, AA377875, AA385959, R60668, AA335517, AA074035, N74403, N74349, AA573544, W86143, AA001378, R20658, AI025133, AA292257, AA421421, H56664, N39032, AA641715, AA020820, , AI047425, AA472466, AA590221, C79020, AA212086, AA071597, 10 AA106338, W08130, W97930, AA592853, AA231046, W64197, C79418, AA823938, AA221509, C79656, AA245954, AA682101, AA855850, AA473492, W08536, AA260905, AI049102, AA185645, W89717, AA109639, AA733290, W33785, C76616, AA733222, AA519045, W34372, AA066569, AA691645, AA572427, C79871, AA255234, W63015, AA689692, AA688470, AA066196, AA403359, AA210393, C81440, W82152, AA563263, 15 AA096538, AA008688, AA412918, AA674747, AA214774, AA823987, AA896527, AA756088, AA538420, AA124828, AA067750, AA671458, AA792196, AA855848, W14531, AA432423, AA562178, AA207523, C77610, AA073011, AA060218, AA691391, AA103515, AA245550, AA222057, C78107, AA608092, AA104942, AA408984, AA855192, AA144906, AA895345, AA796175, W41390, AA387888, C77993, AA144316, AA716803, AA276281, 20 AA396852, AA637534, AA107667, AA119982, W09492, W09768, AA771341, AA144901, AA880477, C79311, AA717872, AA272656, C88492, C81442, AA981878, AA606217, AA605671, AA605977, AA605664, AA894180, AI008538, AI012445, AA945532, AA945028, AA012736, AA850423, AA891167, AA851948, AA964432, AA753449, AA542773, AI008780, AA022374, L38072, AA169924, T00115, T00217, F23046, F15046, C07018, T00696, 25 AA753701, T00169, C07195, AA750404, W51726, C07173, AA109326, AA753730, AA109292, AA169908, W51717, AA675873, AA751451, F15031, AA842359, W91870, R95270, AA754092, AA751719, AA751718, AA509249, AA753934, AA952484, AA962878, AA751728, AA752131, AA754188, F13957, T41487, AA433419, AA471455, AA471706, AA754093, N60029, AA406919, D67349, AA754187, T41457, R88411, AA406840, 30 AA417423, AA470325, AA680491, AA754048, Z92686, T44319.

## SEQ ID NO. 18:

- 35 U14003, AE000500, X66784, AF030178, U77066, M10122, M69106, X58072, Z99113, AF004104, AF004101, X55037, X78560, AC004595, X55122, AA481578, AA280143, AA481271, AA280144, AA736516, N79995, R82883, AA355987, AA571000, AA572293, AA738653, AA620225, AA855746, AA563168, AA530645, W40812, AA690944, AA839456, X61848, AA525648, AA141861, AA944854, C94212, AA394778, C83861, H76642, 40 AA559379, AA943112.

## SEQ ID NO. 19:

- 45 AE000500, AF030178, X66784, Z49405, M69106, M27174, X55037, AF004104, X78560, U51281, L17405, M10122, AC003106, X55122, X05553, AC002368, AF004101, U77066, U77456, X58072, AA481578, AA280143, AA481271, AA280144, AA736516, AA780050, AA359089, R82883, AA355987, AA571000, AA563168, AA738653, AA620225, AA855746, AA572293, AA530645, W40812, AA690944, AA839456, X61848, AA525648, AA944854,

AA141861, C83861, AA943112, AA957703, H76642, C94212, AA394778.

SEQ ID NO. 20:

5

Z99496, AC004518, AC004219, Z70204, J03925, Z66494, AC003053, U40072, AC002980, S52165, AB009051, M81884, AL021767, Z68164, M18044, J04145, AA383216, AA928132, Z19212, R84841, H83829, T71075, AA723804, H95329, AJ003438, W13441, AA199243, AA242009, AA272568, AA009230, AA880181, AA265864, AA124746, AA801108,

10 AA874804.

SEQ ID NO. 21:

15 U20864, AL021246, AA430998, AA050776, AA104086, AA414390, AA920944, AA624117, AA788028, H36635.

SEQ ID NO. 22:

20

Z81462, AF029308, AC004069, AL010265, AL023828, AC004026, AF076274, U96110, Z71181, AF000265, U59919, Z80108, X66974, Y15994, D50366, D50367, AA034417, AA053882, AA883340, AA132258, AA770253, AA132362, AA132257, T62545, AA425357, AA721474, AA483037, AA724043, AA491390, W27229, AA047351, AA247867, C01523, 25 AA548452, AA024660, R53754, AA795672, AA199329, AA986113, C81340, AA914941, AA536730, AA819693, Z28994, AA142165, AA585560, Z26382.

SEQ ID NO. 23:

30

X60469, AC000394, L08048, X12597, D63874, U51677, S71186, D43920, U59897, AF026132, AB012725, L02751, D88509, M15825, AF017349, AB002361, L49022, Z82196, S68108, AC005266, M60450, M55514, AC004406, AF019611, AC000398, U28932, AF049850, X58671, AC004101, AC004687, AF062921, AF004294, M33190, M73049, U00665, L04132, 35 AF039845, L06147, M60052, X56007, Y00500, X77934, U26708, AL022333, AL021710, AF005720, Y13901, AC003952, U02506, U61387, AC004491, M81784, U00763, M80414, U84223, X87461, AF006040, U82468, AF005900, U29175, D26156, L13025, AL021127, X87329, Z82076, U25126, M30298, M34041, S80994, L13856, J03806, U23805, U20951, D82352, M38742, U05192, D76432, M21683, U19460, L48363, D78647, U26259, M55017, 40 L06098, L19713, U88047, S67316, U47276, U28389, U18650, M85183, U07886, U00762, X54504, S67319, M89788, AC002995, AC000370, D84418, Z46757, AA167070, AA595202, AA166712, C05079, AA632468, T64162, H14432, AA095130, AA304799, AA541691, W38700, AA593710, AA889358, AA079129, T64291, AA143566, AA481443, AA991543, AA404267, H92212, AA134178, AA991539, AA991535, AA134179, AA248062, AA079130, 45 AA634670, D25983, H63841, AI025061, AA531274, AA366296, AA360842, F22618, AA366810, N88386, AA715713, T90564, N38949, AA045606, W07682, D55472, AA557452, AA600212, H89557, AA327933, D20752, AA083771, AA101746, AA563764, AA330028, AA987424, AA054783, D83849, R34185, D52874, R81133, D55190, AI034040, N26696, AA196344, AI041775, AA054719, M79245, H54611, AA813685, R43019, AA426205,

- AA527046, R10011, R14525, AA053848, H85928, N85207, AA536117, AA497040, AA017619, AA093385, F08518, T70173, N83954, W28966, H98185, AA506305, R07822, T05370, AA652934, AA021126, AA236110, R93864, AA643226, N52274, AA046288, AA079860, H80808, R54825, W28236, AA537503, AA288865, AA914010, AA546178, 5 AA895780, AA921471, AA509592, AI019685, AA792002, AA821727, AA466161, AA122542, AA387328, AA172425, C87724, AA895923, AA259495, W18813, AA960471, C87940, AA921284, Z74659, AA407850, AA675676, AA738607, AA619874, Z74640, AA881206, W97542, AA896321, AA106515, AA562363, AA797955, AA895398, AA123213, AA798375, AA467444, AA123743, AA611503, AA388279, AA516863, AA588982, AA169099, 10 AA727617, AA516854, AA560832, AA793428, AA120232, C80564, C81382, AA412789, AA607305, AA039151, AA415500, AA529643, AA080345, AA238459, C80723, AA467433, AA473693, C77886, C80539, AA915029, AI037742, W58796, AA591350, AA623692, AA792889, W91681, AA051589, AA060808, AA116289, AA267544, AA444983, AA498517, AA590755, AI021142, AA114557, AA270502, AA790432, C85885, AA123204, AA170036, 15 AA211953, AA438133, W79965, AA591380, AA624294, AA624917, AA386884, AA636994, AA386974, AA469668, AA795177, AI050523, C94974, C83593, C82737, N37420, C92269, H35981, AA818062, C73802, AA720311, D41136, F15112, D46038, AI035042, C83610, AA875659, D41283, C82754, H36775, H32221, D41870, AA860020, C25027, AA224679, AI008510, L46426, C08715, C28364, AA684640, AA941159, D22112, AA264452, D15403, 20 H34930, D40666, D41146, AA750433, C20172, C74114, AA800271, C91616, D23315, AA800199, C27928, C73183, AA801317, AA955860, AA801633, D42374, AI043271, AA816245, AA439680, AA605835, AA540843, D40984, Z71869, AA979311, C70650, AI012063, AA392031, U94861, D15662, C08297, C11108, C11146, C31764, C34637, C37817, C47184, C52269, C54739, C58131, C58618, C36053, AA898501, AA951524, T01370, D40028, 25 D48397, D72544, D72553, AA963561, M89319, D24210, D23745, D72761, C59680, AA820741, T01827, D42962, AI035194.

## SEQ ID NO. 24:

- 30 Z93928, U13881, U70475, X89811, X81456, U20532, X04724, J00748, M25585, J04807, V01243, M12913, AC003074, AE000626, AA662803, AA886335, AA922036, AA878578, AA161103, AA485405, N52768, AA643750, AA910277, N52783, AA657904, AA631339, AA158820, AA485566, N57590, N57604, AA127055, T25136, C21312, N50304, AA127056, 35 C01240, W65459, AA416662, N48671, AA759070, N29058, H06159, R97183, F20369, W74006, AA210618, AA825287, T15787, R67195, T91328, H06144, AA608823, W74282, T52487, R17253, T50700, AA710096, AA793203, AA106190, AA674919, AA691210, AA709564, AA688482, AA709549, AA286083, AA637633, AA863920, C86279, AA940262, AA675156, AA986540, AI006503, C78301, AA413934, W33763, AI035505, AI036707, 40 AA498683, AI046409, C85159, Z84147, AA893230, C06683, C06682, C06639, C06625, C06581, AI029119, C06813, C06751, C07055, C06613, C06863, C06604, C07135, C07117, C07030, C06535, C07018, C06636, C06511, C06605, C06612, C07058, C06908, C07105, C06559, C06724, AI014020, C07031, C06541, C06767, C06618, C06546, C06906, T75705, C06519, C06802, C06669, C06655, C06560, C07009, C06616, C06506, C06510, C06652, 45 C06750, C06806, C06950, C06971, C06974, C06608, C06788, C06890, C06536, C06778, C06831, C07167, C06840, C06946, C06513, C06642, C06914, C07148, C06600, C06925, C07008, AA851621, C06514, C07107, C09614, C06525, H31786, C06858.

## SEQ ID NO. 25:

AF019412, AC004404, X06166, M65066, AF006040, R13835, Z43662, F07559, R87914,  
AA323632, AA806551, AA351660, AA404545, AA693604, T77601, AI039071, AI017031,  
5 AA489394, AA664956, W73671, AA057240, AA129710, AA342548, T93900, W73623,  
N53667, AA725874, AA804595, AA907520, W56587, H68702, AA323997, T64725,  
AA884894, AI022045, R02181, AA279068, T19926, AA733025, W51682, AA822148,  
AA138982, AA267343, AA709923, AA423781, AA185617, AI006077, W82491, AA062192,  
AA270251, W54396, AA718043, AA451528, AA387186, AA388304, AI021006, AA458323,  
10 AA734717, C72433, AA940925, T26042, AA998047, AA651398, AA712850, AA979380,  
AA851912.

## SEQ ID NO. 26:

15 D38548, M59201, U67559, L29453, L27707, X52142, M58326, U49350, AL021806,  
AA323338, AA287807, AA378829, AA826533, AA524104, AA928732, AA127169,  
AA515984, AA962233, AA332628, W90207, W55983, R98570, AA937512, AA190722,  
AA409809, AA027693, W15854, W82920, W14373, AA624765, AA958909.

## SEQ ID NO. 27:

AJ005458, S90449, S74572, D17412, D17411, U09218, D45860, D45861, D45859, S87759,  
25 S87757, AJ005457, J04503, D28117, AL009051, AL022603, M86359, Z84489, AA625572,  
AA431963, AA180531, AA180520, AA379401, AA164383, AA135096, AA769851,  
AA465249, Z19798, Z20951, AA625571, AA854244, AA625051, AA193078, X85622,  
N88139, AA179618, R33159, R79167, AA613881, AI042584, N83569, AA360057, AA011060,  
AA154560, AA276352, W54488, W54415, C87503, AA549511, C85223, W08528, AA656770,  
30 AA497692, AA855719, C85235, AA407160, AA516930, AA240636, W41595, AA475660,  
AA914011, AA537063, W42402, AA033036, AA644993, AA517242, C85347, AA525713,  
AA962971, AA998206, AA394677, AA998046, Z71861, H31577, C19204, AI045015, R65006.

## 35 SEQ ID NO. 28:

Z84812, X56744, AB007445, AE000947, AF038854, X98801, AB013487, U40575, AF002992,  
D79209, U33840, U55042, AF000168, U76615, L28716, U31977, L25548, L23646, AF037987,  
AF037988, AF037986, X16944, AF037455, X61920, AB004061, U21050, K00824, Z47005,  
40 U02478, L00627, Z74150, M35657, AF037984, X15477, AA070233, AA768890, AA704738,  
AA491544, AA747198, AF012388, AA453482, AA393092, AA351249, F08069, AA576778,  
C18739, W02878, AA260806, AA792752, AI037115, AA107079, AA606798, AA267705,  
AA833235, C79173, C79128, C78861, AA655446, AA254466, AA674661, AA212535,  
AA008734, AA879626, W41067, AA619200, AA087347, AA138013, AA547261, AA002419,  
45 AI021096, AA275231, AA433044, AA221284, AA822351, AA014416, AA986428, AA221500,  
W64585, AA739293, AA450489, AA616218, AA673749, W09948, W80148, AA058081,  
AA111583, AA109879, AA516815, AA759685, AI047206, AA036090, AA475741, AI044800,  
W00180, AA997260, AA439137, AA996688, AA964874, AA750540, AA749776, C36210,  
R03414, AA520514, AA519480, T01878, AI026368, AA531657, H77262, T01090, N38684,

AA965082, R46894, T37779, T37753, T38689, C24841, AA519236, T38077, N60531, C56520, C39038.

5 SEQ ID NO. 29:

M37030, AF035811, AF073312, X61452, AF061152, AF006988, U59632, AF061153, Y11593, U74628, U08103, Z98866, Z69710, U52918, U52919, D89208, AA262134, AA262133,

AA459232, AA261944, AA465590, AA480946, AA252838, AI003777, AA322577, W05228,

- 10 AA323006, AA451780, T09445, R55858, AA324456, R87202, F11317, T30876, AA322117, AA357101, AA853747, AA325651, AA683394, W69297, H46499, AA055270, AA350932, H14250, AA024634, AA234283, L44408, AA604064, N55150, AA462547, AA146273, AA789450, AA873999, AA791509, W64849, W85596, AA444524, AA572240, AA032529, AA469889, R75180, W53226, AA020101, AA762779, AA869090, R74897, AA238408,
- 15 AA867045, AA415500, C78795, W54807, AA266548, AA511393, R74879, F14565, C57606, C57776, C59287, AA539919, D35810, C65610, D36489, D34951, AA950835, C66232, AI012506, C62041, D37043, C67579, AA696662, C60241, C13766, C69199, AA685788, D66025, D66320, D66176, AA550227, D66297, C57131, C58693, D65593, AA800156, D65694, C64990, D69331, D65426, D68791, D66117, D66340, D66241, C12616, D66000,
- 20 H76149, D65431, H34478, D69657, D65625, M89459, AA819212, D69682, D70222, D65711, D65685, D69823.

SEQ ID NO. 30:

25

AL022394, Z54200, U12024, AF025391, S73606, L08068, U01053, AP000046, AA282633, H83341, AA744757, AA047741, AA975917, W45279, W90155, W79733, H01158, N47513, AA688093, AA865203, W90027, AA595381, AA054203, AA478596, AA100549, T80668, AI049820, AA047691, AA969720, AA086374, AA159414, W39756, AA159315, H83695,

30 AA909221, T06258, AA969838, AA013361, H05751, H05858, AA665540, D12197, H01159, AA933811, D12219, AA282525, C05204, N47512, R57383, F18424, D79284, W92778, H18813, H20386, N77238, R84635, AA204675, R80129, W95005, T85150, AA523436, AA743656, T84782, W95004, R55724, AA572180, AA790119, W96964, AA420091, AA169954, AA623914, AA623971, AA681631, H32698, AA735717, AF026318.

35

SEQ ID NO. 31:

- X17644, AC002310, U95742, L37045, Z92835, L38828, L07843, X56910, AF025468, X62379,
- 40 X53599, X73911, X57331, U25851, AC004217, AA488455, AA112360, AA085969, W39758, AA450255, AA385764, AA306361, F08788, AA133458, AA331334, AA357236, N83925, AA319543, AA907882, AA295194, AA780612, AA805179, AA091629, AA233394, T52577, AA352655, AA211401, AA223759, AA187286, T51341, R66786, H17719, T08767, AA865254, AA761172, AA219613, AA169748, AA761180, AA878125, M62053, H97773,
- 45 AA775004, N47792, AA580452, N77885, H20947, R39533, R16161, AA916422, AA446700, AA918094, AA960808, AA873720, H84809, F10962, D78656, AA917945, AA404653, W67540, AA430019, AA643603, AA603207, AA446573, AI014813, AA988575, C14668, R15819, AA769334, AI041235, R46057, W19901, W55959, H60522, AA219635, AA133573, AA406042, AA670040, AI022461, AI005124, AA931798, AA918010, AA904626, AA708261,



AA721503, AA279498, R46796, R12508, Z40330, AA455678, AA054518, N36991,  
AA879059, AA683027, AI026067, AA669953, AA088745, W55958, AA396956, AA555800,  
AA154170, AA981643, AA071792, AA066012, AA981626, AA154214, W14994, AA197464,  
AA109909, AA260252, AA416413, AA389313, AA204468, AA109518, C77638, C77886,  
5 AA183642, AA415277, AA987053, AA138979, AA145942, AA666768, AA795476,  
AA197732, AA815895, AA106800, AA657049, AA096871, AA671011, AA062392,  
AA474044, W46023, AA959293, W35880, AA516832, D67123, AA495624, C74197, D68097,  
C24919, D65118, X73715, R30624, AA586106, AA819013, W43432, AA799892, AA858586,  
AA142059, T44911, C92734, AA952406, AA495523, AI030315, AA676129.

---

10

SEQ ID NO. 32:

AF017364, D78609, AF011331, AJ223316, X69524, AF019907, AF009411, AF009413,  
15 U44430, AF069324, AF001501, AF009959, M99575, Z54362, U60149, AF029349, AJ005572,  
Z28367, Z97178, D83476, U62398, AF001688, U50847, AF022732, AF045770, AF019887,  
AF006628, L41731, AF026216, U74296, AF016371, AF006627, AF020187, AB002739,  
AB002741, AJ225108, S80963, U19482, D83352, AB002728, U38894, AF001522, U46118,  
AB002794, U82480, AB002730, U10355, AJ005969, AF022733, Y15794, U14936, AF019043,  
20 S51033, U58090, AB002777, X71980, AB015609, U25846, U55848, Y14339, AB002533,  
U43527, U48288, AF004947, L10111, U35364, AF058796, U08214, AF023132, Y11879,  
Y13865, U33214, U41060, AF048691, AB005545, M69042, U37699, U40802, Y09455,  
X77990, U64609, AF071010, L49502, AD000017, S68736, M82977, AA121558, AA927567,  
H92975, R67157, AA039781, AA078892, AA454159, AA354002, AA934648, AA356829,  
25 H58224, AA316922, AA977788, H78570, AA953223, AA992339, U30151, H48430, D82132,  
D57213, C75478, C18748, C75472, C75170, D82799, AA362857, AA374918, C75020,  
Z28355, AA357303, C05952, AA301748, D63057, D82421, C75176, AA669404, C05853,  
AI016032, C16591, D59976, C75108, D57346, C75118, C19093, L48852, T27986, U30155,  
D62770, AA317816, AA365617, D52369, T11092, C06140, AA357401, N93837, D51124,  
30 N75780, C18589, AA083604, AA471140, AA354268, C06018, Z21605, L48853, H90908,  
AA188141, D57197, AA573490, AA587755, AA070452, AA302374, AA303144, AA352846,  
AA374865, AA976510, T69957, D60150, D80615, N71594, C05868, C14789, AA355029,  
H73203, AA113291, AA303336, AA358041, AA301756, D59695, T27384, C18745,  
AA308574, AA271637, AA549023, W85152, U31322, AA106372, AA795651, AA457999,  
35 AA681967, W49394, AA221922, AA276547, AA242387, AA061250, AA146431, AA021897,  
AA596536, AA183239, AA271248, AA389067, AA871189, AA145354, W09313, AA030290,  
AA871865, AA124414, AA052617, AA871752, AA544610, AA117188, AA869120, AI049175,  
AA266008, W98973, C76233, W66614, AA199206, AA221363, AA254150, AA268605,  
AA867829, AA185301, W12393, AA073318, AA174921, AA212810, AA254516, AA387162,  
40 AA596462, C77430, AA986671, AA062512, AA388966, AA555783, AA177472, AA106040,  
AA553155, W30212, AA286196, W12857, AA717172, AA065453, AA267923, AA242444,  
AA396448, AA217994, AA111828, AJ005971, AA123661, AA114501, AA752812, R47079,  
AA754144, AA509249, AA509214, AA754103, AA840962, AA840909, AA754200,  
AA509237, W51718, AA753300, AA509309, AA842677, AA752086, AA754036, AA753093,  
45 AA754159, AA754172, AA754167, AA751994, AA751845, AA751998, AA752003,  
AA751816, AA752422, AA751932, AA751561, AA753150, AA754119, AA840970,  
AA752005, AA842862, AA752043, AA752907, AA752718, AA752020, AA840977,  
AA752035, AA752016, AA753086, AA109333, AA701820, AA752034, AA547916,  
AA840986, AA547812, AA841367, AA751857, AA406980, AA471673, AA842464,

AA840972, AA842001, AA751834, AA753165, AA751921, AA754646, N94700, AA753087, AA964820, AA756947, AI043420, AA180549, AA109417, AA752726, R46936, AA509142, R47062, R47121, AA751866, AA842064, C39627, AA752073, R46926, AA751679, AA052011, AA751805, AA738551, AA754140, AA430916, AA842660, AA841358,  
5 AA840999, AA753219, AA406761, AA751829, AA751919, W06556, AA753085, AA752022, AA753149, AA753147, AA751841, AA753185, AA180648.

---

SEQ ID NO. 33:

10 U10079, U22176, Z97192, X86553, D16432, Z68908, X98417, X97752, AC005176, AC004235, AA211771, AA019927, AA621920, R49915, AA436746, D81089, F07201, AA279576, R61642, AA363761, N90952, AA351423, W85802, AA827923, N41673, AA452942, AA252094, W95240, AA188552, T99151, T53177, AA223851, AA677535,  
15 AA770162, W85753, H58876, AA017014, W57195, AA117575, W41201, AA415215, AA797940, C76608, D16065, T18290, D16046, AJ225545, AA713066, AJ225477, D22650, AA944738, AA849372, T25220, D23185, D22651, D23309.

## 20 SEQ ID NO. 34:

AF041845, U48436, AF012624, L76569, AF025020, AF060179, U51281, Z37092, L12249, D83476, AF017434, AF062008, Z97198, AP000046, AA367417, AA852175, W67669, AA303139, AA243251, AA896193, AA881167, AA989888, AA683969, W62376, AA250652,  
25 AA512820, AA237481, AI036738, AA547433, W97958, AI036611, AA656921, AA892380, AA926074, D72379.

## SEQ ID NO. 35:

30 AF069301, D17030, D17201, S80107, M15888, U09205, J00127, J00128, M64982, L11356, M58569, AE001140, D10667, M77812, AF001548, U39850, AA188052, W28824, AA380387, AA393863, AA426250, F00243, AA157205, R00525, AA137720, AA244463, AA118832, W97106, AA674322, AA645183, AI020701, AI019310, AA717623, W48327, AA153061,  
35 AA103723, AA800548, T46478, AA751512, C10724, C60506, AA819627.

## SEQ ID NO. 36:

40 U81160, U35246, U66865, AF036234, Z71178, R52780, AA336715, AA337057, R12336, AA296712, AA291962, AA336501, AA387806, AI020063, AA109010, AA867718, AA606883, C11880, AA698152, D65730, AA851373, AI028830, AA941242.

## 45 SEQ ID NO. 37:

## SEQ ID NO. 38:

Z46933, AC003957, X64346, U18759, L31881, U18761, J04123, X79489, U18760, AB012234, U11280, Z35865, AC002461, AC004780, AL008980, Z79601, U23404, Z74859, D89119, AC000387, M76665, Z48149, AA948725, AA226732, AA232882, AA232883, AA767922, W39443, N40268, W06854, AA337266, AA319281, T08800, AA094683, AA151630, T33776, 5 AA151682, AA384011, R21292, AA806313, AA047744, AA411384, H41338, H49115, H50377, C89065, AA221399, AA163971, Z36313, AA120075, W64578, AA673947, AA285838, AA607874, AA798884, C86947, W62715, AA790168, AI037229, AI036718, AA920062, AA866467, Z30824, AA610965, AA907958, AA495425, W43775, C41467, C20235, C20223, C19643, C20439, C68506, C73712, C20236, AA978809, M89274, D74720, 10 AA712627, D74758, C19867, AA816719.

## SEQ ID NO. 39:

15 L41560, Z66499, AC003970, AE001177, AF051320, K02212, D88539, U35665, L41069, Z38118, AA744773, W67994, AA046574, AA130298, N71111, R77986, H61835, AA134115, AA722572, N51491, Z36854, H61836, AA458506, AA459607, AA862531, W68186, AA046661, AA459381, R77891, R60953, AA733213, W05472, AA442998, AA136770, AA127983, AA229166, AA741465, AA003716, AA204457, W34842, AA097555, AA674958, 20 AA770799, W81850, AA623806, C78185, AA002533, AI030850, D26771, AA924818, AA848998, AA923967, AI045386, H32633, AA956916, D86678, T14138, AA925473.

## SEQ ID NO. 40:

25 AB002307, X06289, Y00222, U59322, U28964, X61754, AJ004801, U13913, X79339, AA164880, R02386, AA219744, AA324396, D82199, AA113090, AA305260, AA171458, R59748, R35620, AA326344, AA227875, AA366276, H29212, AA505691, R78747, AA406622, AA020232, W64555, AA450476, W44167, AA049918, W64627, R75474, 30 AA517492, AA612452, AA711884, AA212469, AI048148, AI046831, AA671392, AA855606, AA016843, AA031134, AA208052, AA619148, W34918, AA851114, AA901667, AA054812, AI001233, AA955131, AA943821, AI008608, C72506, AI001373, AI001376, D25096, D21962, AA997901, AA824936, AA998885, AA824820, AA998125, AA859586.

35

## SEQ ID NO. 89:

AF069301, D17030, D17201, D10651, U90278, U11287, U11419, M91562, U28411, J00127, J00128, L11356, AE001140, M58569, U72724, M64982, AC002082, AF016667, M80474, 40 X57855, M64542, X79424, Z75955, AF024504, M16512, M13968, M96930, W67775, AA617696, AA934587, AA628682, AA913577, AA969876, W74527, AA995606, AA622402, AA027090, AA426250, AA393863, AA620556, W79046, AA085733, AA187157, AI031865, AA027130, AA115569, AA897169, AA972318, AA365494, AA282967, AA531124, AA733183, T90909, T71475, Z25096, T83700, W28824, AA721771, AA188052, T83325, 45 AA115089, T49643, R00622, R00525, R08138, N93780, R00626, R00521, W67774, N74066, AA157205, AA380460, AA658299, AA380387, T55344, F00243, N55668, AA353778, AA815401, AA399269, AI018748, AA412669, AI028745, AI025290, AI000112, AA813227, AA807574, T61743, T74407, AA397527, AA077926, T60362, AA344542, H67459, T73868, AA026737, T95711, N33594, T72304, W87761, T71715, T72978, T74485, H58121,

AA382695, T68055, T72803, N76269, AA243026, AA003997, AA250467, AA968175,  
AA260498, AA958697, AA397074, AA008542, AA036229, AA253686, AI019478, AA727785,  
AA543461, AA474978, AA990281, AA289292, AA277873, W91218, AA617042, AA245791,  
AA980640, AA015355, AA153061, AA467514, AA983015, AA244463, W97106, W48327,  
5 AA118832, AA717623, AI020701, AA674322, AA137720, AI019310, AA645183, AA066905,  
AA575384, AA690248, AA030780, AA717411, W89322, AA103723, AA145999, AA543989,  
AA223057, AA982200, AA462778, AA242574, AA882490, AA986911, AA986993,  
AA450716, W65528, AA675395, AA120064, AA848318, AA874979, AA800547, AA800548,  
AA945302, AA991110, AA140994.

---

10

SEQ ID NO. 91:

AC002406, AF004731, X59720, U38194, Y13577, M16506, M34435, X92479, AL021841,  
15 U04322, X06487, AF022814, Y12819, U19536, AA161279, AA313555, N73050, AA349808,  
R55892, R12074, AA306333, AA808521, AA112736, AA374663, R11472, T07091, AA332703,  
N55712, AA128949, AA220981, W23692, T34200, T04966, AA442929, AA223449,  
AA304362, W05553, AA306300, AA121411, AA126735, AA115299, AA127895, R40004,  
H16408, T91226, W07681, AA977084, AA282371, AI041091, T53269, AA907901, AA405604,  
20 AA975477, AA656943, AA415300, AA547177, AA152969, AA727497, AA008280,  
AA510078, AA874162, AA675276, AA815601, AA125094, AA170008, AI036039, AA546442,  
W98981, AA711690, AA855201, AA636479, AA220116, AA240658, AA217941, AI046964,  
AA822123, AA693080, AA212971, AA674507, AA028682, AA111514, AI042785, AA656185,  
AA027752, AA511695, AA647841, AA693239, AA511469, AA146356, AA288692,  
25 AA623827, AA681271, AA414089, AA989996, AA612104, AI007318, AA118257, AA422575,  
W55838, AA738879, AA756022, AA867694, AA870171, C19406, H32373, AA577635,  
D48085, AA925604, AA415115, D47710, AA246139, D48681, D46931, D36706, AA957746.

30 SEQ ID NO. 93:

AF039700, AF039699, U66201, U66197, AF020738, U85773, Z46966, AC004301, U86662,  
W22160, AA860926, AA348243, AA551799, AA327309, AA344913, AA121174, AA121198,  
AA001561, AA040802, AA215903, AA826741, W32428, AA888147, AA403143, AA946650,  
35 AA969632, AA872272, AA903406, AA860208, AA577174, AA514777, AA160827,  
AA041240, W45005, AI005324, AI005204, N72025, AA806381, AA725024, AA262229,  
AA927863, AA172158, AA039536, R02514, W47466, AA587486, AA629243, AA814296,  
AA877455, AA435587, AA393904, AA022495, W47341, N35888, N35076, AA974988,  
N21678, N72024, AI040354, AA804907, AA573297, AA416559, AA401079, AA417295,  
40 AA873216, AA824270, AA759038, AA757360, AA628544, AA618498, AA503727,  
AA460961, AA461270, AA813115, AA759377, AA770473, AA262162, AA416815, R82551,  
AA948291, AA416734, N98472, AA431486, H30248, AA161105, AA852281, AA616807,  
AA106439, AA711859, AA049011, AA016868, W61547, AA009071, AA543280, AA467482,  
AA106301, W83172, AA103139, AA000268, AA014223, AA138067, AA230758, AA833479,  
45 AA014768, AA276740, AA038869, AA797372, AA185487, AA881111, AA763419,  
AA790448, AA469884, W77724, AI048515, AA007762, AA497479, AA033481, AA475425,  
AI047077, AA068686, AA796056, C87249, AA921560, W87202, AA542324, AA967316,  
W62989, AA530735, AA218431, AA591243, AI047609, AA692425, AA966976, AA856298,  
W20935, AA111190, AA230661, AA840087, AA089210, AI035925, AA824205, AA793845,

AA239210, AA711873, AA645119, AA957268, T00613, C82607, AI012760, AA801145, AA859865, AA859542, C83463, AI009035, AA956139, AA859448, AA660819, AI009631, AA874930, AA801144, H32878, AA125602, Z32602, C68472, AA943364, AA785775, Z33974, D46069, AA660859, AA955567, D45997, Z32603, AA842765.

5

SEQ ID NO. 95:

- 
- X99728, X59048, AF039698, U48696, S78798, U39066, U66300, AF045432, Z97178,  
10 AF027174, AB000098, U52868, U37573, U65376, Z49980, AF033565, AF033097, S83098,  
G29060, U34048, AJ001103, G29058, U44386, X99051, U41811, AF033096, X71132, X69525,  
U64599, X99055, Z26252, U18917, U19886, AB011020, U48364, AF001549, X03234, J00184,  
Y12573, U48363, Z84721, U25973, AA179517, W96224, AA724586, AA536163, AA976337,  
AA194270, AA279466, AA776726, AA483454, AI040976, AA431450, AA970887, AA877479,  
15 AA894770, AI000871, AA431579, W95840, AA725824, W68289, W96319, AA179564,  
AA948024, T83956, AA688086, AA478185, F21973, AA858279, AA478027, AA366735,  
N88601, N55698, N88782, AA096066, AA095641, N84829, H58760, AA471338, N89520,  
N84830, N83991, AA247964, N83168, N84048, AA096046, N84718, N86694, AA247827,  
N84712, N83992, N83993, N84855, N88518, AA093224, N87989, AA095359, N87898,  
20 AA093861, AA089553, N88496, N56555, N84828, N56118, AA093897, AA089554, N84016,  
AA247965, AA215911, AA215908, N84723, N55658, AA094237, N84602, N84733, N84764,  
N84561, N84721, N83229, N55681, N55684, N84873, N55669, N84874, N55641, N84734,  
N84736, N85900, AA249064, N84781, AA095435, AA249712, N88018, AA093577,  
AA092086, N85031, AA095475, AA093313, AA095511, N89307, N85930, N84740,  
25 AA434697, AA237234, W62735, AA637114, AA033103, AA790334, AA833155, AA403954,  
AA466835, W84285, AA637841, AA237989, AA289419, AA710335, AA691719, W89930,  
AA616952, AA212922, AA571119, AA098011, AA896312, AA606285, AA285913,  
AA218382, AA822840, AA940345, AA259992, AA821517, AA470225, AA521758,  
AA607378, AA914347, AA108575, AA509884, AA162724, AA015378, AA161959,  
30 AA103752, AA794191, AA208274, AA798889, W33307, AA016594, AA387823, AA945793,  
AA997649, AA964381, AA944107, AF041408, AA933116, T14972, AA754150, AA996765,  
W43831, AA257763, AA842533, R62058, AA848534, AA963515, AA752422, AA848535,  
AA660164, AA754139, AA660165, AA471470, AA675874, AI043379, AA842214, L19203,  
AA161703, AA161711, AA754373, AA754181, AA180582, AA754148, AA754159,  
35 AA842305, AA180607, AA933288, H07815, AA791314, T00021, R47112, H07828,  
AA555441, AI011717, AA752718, AA109452, AA257280, AA892675, AA754224, AA406790,  
AA509100, AA109326, N94683, N82177, AA842503, AA842176, AI010119, W91818,  
H07423, AA842216, C30674, AA685067, AA509309, AA509163, D43402, AI012505, F22972,  
H07842, AA433419, AA109292, C07229, W51723.

40

SEQ ID NO. 97:

- AF053974, X96705, U22237, AC004260, Z66517, Z77134, U32723, U35657, AC002080,  
45 J04355, U82202, Z35601, K01711, AL022598, M20865, AA374801, AA306449, N48227,  
H64263, T51666, R52634, AA318276, AA706990, AA551148, AI028232, AA581365,  
AA694052, W87336, W47503, AA554571, AA607765, AA154690, AA924880, D23509,  
AA067503.

SEQ ID NO. 99:

Z22176, AL010226, U67566, Z96798, U09956, X56775, Z97339, Z70206, X56260, U67594, AF052832, X52572, Z98598, AC002294, U41554, U66261, M97618, U00149, AC004745, AC004255, Z72888, Z72846, D90759, J03297, M36386, Z65781, U49960, AC003096, AC005238, M20147, AF014960, X07289, M80571, Z71527, Z68277, Z81066, D90852, Z68105, Z99165, U07065, Z92540, AC002432, AC002351, D14533, AL021635, U14566, Y00067, Z73971, U53502, L35848, U10343, U59711, U33934, U28487, M76702, M10066, Z65782, U86962, D85428, U33933, AE000221, AC004135, U62293, X64461, U15591, D90758, AA047345, C75194, AA152132, T39704, AA404974, AA313387, AA377300, AA773368, AA362228, AA047344, AA247511, T40740, W38779, AI050068, R13549, AA346462, N50523, W27312, AA551073, AA306922, AA034218, AA496544, AA975271, AA033534, AA155696, AA423826, AA989046, AA115605, AI024233, AA620978, AI033843, AA115471, AA115213, AA134882, AA559320, AA610042, AA135338, AA248692, R70913, AI022302, AA046587, AA307285, AA781036, AA692567, AA681336, AA549004, AA563487, AA177677, AA915150, AA153059, W41094, AA445202, AA498066, AA409473, AA177599, AA562914, AA266872, AA656061, AA896022, AA117475, AA738723, C77886, X61844, AA674119, AI045314, X91731, C71913, T02509, AA925983, T03973, T02602, AA753121, D48485, AI009917, D24757, D24759, C29123, C28355, AI011347, AA695453, C70381, H36637, C23428, C62223, AA696075, AT000376, AA264575, C63593, AA440992, C48257, AA264245, C23391, AA392990, AA949994, R90723, D47512, C23189, C28792, AA264789, C23091, C23221, C23281, C23486, AA651405, AA791285, L47867, AI030465, W23399, AA802503, C23380.

25

SEQ ID NO. 101:

L41679, AE000664, X70810, M97702, AF007261, AC004052, Z70040, U95973, AB006205, U18340, AC004281, M57977, AF015262, X78823, Z48930, U92453, AF047660, U45982, Z22178, U18338, Z83107, U18337, Z69907, U84551, Z81369, AC004136, U12769, D16355, U06755, AA353592, AI017212, Z20462, AA084913, AA322347, H67555, H15054, R60319, AA782925, AA113206, R41988, H09807, H68176, AA325657, AA635184, W00737, R52825, R44297, Z41301, R34253, AA351933, F05557, AA382460, AA861207, AA688169, AA813930, H97901, AA504297, AA907592, C17555, AA437174, R80561, AA485838, AA287335, AA297740, AA489714, AA722140, AF017648, AA804212, AI015606, AI005291, AA913492, R75960, AA343951, AA334986, AA292286, AA258087, AA025640, R66450, AA843675, AA865754, AA527317, AA232238, N30011, R73028, H27866, H12877, R72656, N69992, AA481805, AA138080, AA615376, AA265134, AA140400, AA608248, AI047363, AA146296, AA930813, AA575341, AA388659, AA462933, AA958463, AA656418, AA589980, AA869843, AA087361, AA792077, AI006571, AI021357, AA690956, AA895651, AA110646, AI046734, AA655927, AA415593, AA200384, AA162290, AA549901, F15585, AA955266, D33207, AA540536, F14406, R03451, AA850731, W06651, D33188, C92137, N97695, D34445, AI029865, AI010659, AA926162, AI045900, AA859190, D32367, AI043939, AI028821.

45

SEQ ID NO. 103:

S78798, AF039698, AF045432, U65376, U48696, U39066, L07590, U66300, L12146,

AF033565, U52868, Z97178, S83098, U44386, AF027174, U37573, Z49980, AF033096,  
AF033097, AJ001103, U34048, G29058, G29060, U41811, X99051, X99055, U48697, D86970,  
X65215, Z35641, L12469, X80164, Y12256, S56922, AA442655, AA768893, AA779510,  
AA632212, W88679, T52585, AA132101, N86694, AA093224, N83993, N84718, N55681,  
5 N83992, AA471338, AA247827, N56555, N84712, AA093861, N84048, N89520, AA094237,  
N83991, N84830, AA096066, N88496, N84721, N87989, N88601, AA089553, H58760,  
AA215911, AA089554, N56118, N83168, N84855, AA247964, N84016, N55698, N88782,  
AA095641, N84602, N84828, N84733, AA096046, N84723, N87898, N55684, N84561,  
AA095359, N84874, N85900, AA093897, N88518, N84764, N84722, N55669, N55641,  
10 AA249064, AA248551, N84736, AA215908, N55658, N85031, N84873, N84829, N84711,  
N84734, N84735, N84563, N56179, N84720, N55697, AA090034, AA248055, AA214702,  
N85930, N84562, N55639, AA247965, N87317, N55653, AA263076, N84601, N86441,  
AA248540, AA210625, N55717, H54881, AA471140, N84665, N83229, N84714, AA216240,  
AA285245, N84921, AA095435, N86439, AA093577, N55721, AA247828, W64759, W85389,  
15 AA170187, AA017792, AA020604, AA733792, AA208274, AA755285, AA717172,  
AA866729, AA286214, W10227, AA166319, AA217994, AF041408, AA933116, AA933363,  
D21922, D22036, W99281, AI010427, AI014137, AA957307, AA866225, AI012477,  
AI008733, AA996445, AA925786, AA818841, AA924371, AA849942, AA925635, AA999172,  
AI011706, AA955950, AA963429, AA957899, AI014042, AI010357, AI012277, AA946050,  
20 AA997129, AA998014, AA899344, AI009863, AI010298, AA859978, AI045178, AI012192,  
AA956403, AA998620, AI009737, AA958000, AA859266, AA964570, AA944452, AI013760,  
AI043606, AI045050, AI010101, R46936, AA900052, AA900076, AI008975, AI045193,  
AI012602, AA899521, AI009352, AA946359, AI009797, AI009148, N99339, AI030877,  
AA012039, AA754231, AA817994, AA859429, AA875121, AA900424, AA924214,  
25 AA945660, AA964165, AI009800, AA800835, AA858619, AA924931, AA933168, AA945755,  
AA946378, AA956107, AA957339, AA998987, AI013389, AI043647, AI043787, AI045635,  
AA660039, AA754049, AA963340, AI007843, AI011499, AI012461, AI044977, AA924075,  
AI044978, AI045381, AI045262, AA842888, AA901302, AI009757.

30

SEQ ID NO. 105:

U23946, U73168, D50912, U35373, D83948, U50839, AF042857, AF069517, U97008, Z68013,  
Y08502, U76753, Z28389, AA570533, N23866, AI049957, AA889659, A699426, AA782487,  
35 AA767408, N29616, N41616, T03540, AA436772, AA194028, AA724105, AA648939,  
AA904276, AA907774, AA192891, AA349791, AA677951, AA593262, D19618, AA437179,  
F09819, AA659891, AA456007, AA165466, AA961715, AA907700, Z40342, R45218,  
AA975284, AA563802, AA888076, AA670261, T31362, AA150773, AA994080, W73892,  
W76177, T33106, R45829, R37062, AA421795, R42942, AA337186, AA194215, AA192645,  
40 T10051, AA877988, AA150882, AA782825, R60960, AA746150, T10050, AA953465,  
AA249486, AA369780, AA367141, AA917711, AA165366, AI016061, T32698, AA382385,  
R21564, N74644, AA383548, AA773506, AA361795, AA359822, R24955, Z19624,  
AA129882, N31418, AA136550, T50042, AA143444, AA599498, AA374055, AA143443,  
H19190, R52382, AA761351, AA459583, AA806592, Z43337, R60959, AA890595, H68058,  
45 H91241, AA442117, AA808896, T52417, W95685, AA151139, T33151, AA610445,  
AA628542, AA422032, AA348728, R63854, AA574979, AA139814, AA684206, AA104614,  
AA210358, W98842, AA041751, AA068223, AA052848, W58896, AA145278, AA217077,  
AA792797, AA269756, AA183101, AA023084, AA423737, AA822385, W91432, AA145277,  
AA681513, AA793915, AA245973, AA790363, AA571781, AA412872, AA254535,

AA792696, AA792697, AA864105, AA549397, AA607276, AA823956, AA790829,  
AA189573, AA510602, AA420413, AA763341, AA727265, AA718492, AA718494, W11974,  
AA274040, AA832663, W56982, AA691932, AA444814, C80712, H34148, AI010131,  
AA859880, AI012636, N60102, N96138, AA605553, W43621, AA528839, R95634,  
5 AA525605, N82554, C56074, H31400, D35020, AA528851, C23491, T14457, AA800738,  
U47092.

---

SEQ ID NO. 107:

10 AF040707, AF040708, AC002481, Z66370, Z83744, Z81141, AD000812, AC004609,  
AC002985, AC004217, AC004448, AC004128, L81694, L78810, Y09450, U63963, AL023893,  
AC004021, AF061032, Z68193, U36478, AC000056, X75891, Y13622, Z36000, AC004030,  
AC003658, Z70227, S44029, AC002558, L76523, AC002126, AC004388, S51944, AP000045,  
15 AC004216, AC004552, AF053630, AC002477, U66083, U59962, U26032, X91144, Y11740,  
AE001001, AA399402, AA447620, AA448454, AA069925, AA448020, AA422152,  
AA233630, AI039091, AA694501, AA594398, AA009713, AA156783, AA599751, AA398362,  
AA070017, H80269, AA938654, C02912, H80365, AA947274, AI003286, AA350419, H09156,  
W23160, AA298504, R40317, AA827591, AA809864, AA297589, AA809865, AA991627,  
20 AA297851, R44669, AA460451, AA082600, AA352547, AA338738, AA463393, AA555202,  
AA325687, R41569, R13235, H09213, AA100151, AA635653, AA302916, R19419, C03526,  
AA009823, AA156852, R15147, R36750, AA666086, AA340305, AA471272, AA091173,  
C03440, AA350420, AA421315, AA628294, AA232327, D11859, AA628519, AA699311,  
AA788699, R02062, H77404, AA082714, N51039, AA278486, AA348125, AA922129,  
25 AA976211, R11648, W94679, AA046821, AI005082, AA094299, T16281, T71616, W76189,  
W79649, AA046804, AA426618, AA452166, H09325, AA570351, T97619, H82895,  
AA485716, AA426080, AA541541, AA657945, AA603229, AA908744, H03358, AA424532,  
AA770584, AA782577, AA832194, AI037102, AA764527, W64225, AA163573, AA073941,  
AA619080, AA709972, W98890, W59419, AA116886, AA199485, AA754894, W70378,  
30 AA797181, AA002597, AA839076, AA387015, AA726154, AA718439, AA980485,  
AA270671, H35002, H35204, AA686027, AI012778, AA686254, AA684618, AA686253,  
AI029875, AA799580, AI045682, AI029738, AA840778, AA753356, AA697668, AA979757,  
AA964367.

35

## SEQ ID NO. 109:

M86752, AF039202, Y15068, U27830, X79770, U89984, AP000020, AL008628, U72207,  
D17760, U19927, U34921, U12707, M62740, J03071, AF016422.

40

## SEQ ID NO. 111:

U64317, L43821, AF009366, D29766, U48853, U28151, Z66513, U38481, M69181, U36909,  
45 U58513.

## SEQ ID NO. 113:



D13866, D14705, L23805, U03100, X59990, D90362, Z37994.

SEQ ID NO. 115:

5

AF011793, AJ001309, Y13350, U95727, AC002087, AC002485.

SEQ ID NO. 117:

10

D13627, Z37164, D42052, Z37163, M97562, Z22289.

SEQ ID NO. 119:

15

Y08915, AF000577, L31652, AJ223156.

SEQ ID NO. 121:

20

X91141, X77723, D86066, U70777, D85844, AB001750, Y08613, D38038.

SEQ ID NO. 123:

25

U27462, AB009517, U10399, AA972362, H16641, AA375684, AA336508, AA393076,  
AA211450, AA312542, AA412102, H81084, AA807300, AA517135, AA035926, AA794287,  
AA163888, W75621, AA521882, C94187, AA445895, AA842425, AA111773, AA051908,  
H35839, AA802415, D48028, AI010004, D36325, D48057, W66028, AA788342.

30

SEQ ID NO. 125:

U63333, AF035625, AF055320, AF032984.

35

SEQ ID NO. 127:

D49677, D49676, U51224, D45205, AC004106, D26474, S69507, D17407, Z74476, Z26635,  
40 Z99279, AC000056, M83200, AB009480, X86100, Y13901, X67611, X56007, U62631,  
X59496, Z72646, AC005092, Z98887, U19755, U41011, U63630, D10061, L20632, U57971,  
X94106, Z94721, U60414, M13101, X61298, X53581, U90211, X73124, U45980, U41411,  
AB000407, Z97355, AA601026, AA669459, N80309, AA569819, AA430135, AA723697,  
T67521, T67543, AA845804, AA320008, AA377829, AA028151, AA028127, AA814970,  
45 AA814962, T69519, AA331011, N78889, AA507133, AA630855, W27716, AJ003534,  
AA600133, AA807323, AA078585, AA326345, AA329479, AA904199, AA824460,  
AA424001, AA452591, AA920561, W30240, W11838, AA221247, AA050756, W20707,  
AA199064, AA771282, Z74661, AA545349, AA422535, AA763112, AA709977.

SEQ ID NO. 129:

D10630, U41671, X63747, Z98745, AB007886, Z11773, AL021997, X84801, U78722, AL022393, Z55026, AC004232, D88827, U31248, AC004522, U88079, U57796, AB011129, AF017433, AJ003147, U78142, AC003966, AF011573, Z21707, AF031657, U88080, U62392, 5 U88081, X51760, X65230, X12592, M36514, L32162, U69645, L26335, X07290, L35269, X07289, L41669, M67509, D45210, D10628, L75847, L32163, U71601, U46186, X82126, X65232, X82125, Z30174, X16281, AC005261, X78933, M29580, Y00850, M88372, X77744, X52356, AF038179, M15709, M99593, X78924, U71599, U41164, X65231, U09413, L28167, 10 U07861, D50419, X78928, X17617, M36146, U09852, X60152, X78927, M29581, AF027146, M96548, M88370, U95044, AF020591, X78925, M88360, X16282, X06021, U66561, U65897, X12593, X89264, X64413, X52533, U71600, AF025771, AF025770, U95992, U95991, U75454, L77247, X55126, AA613873, AA724783, W89121, AA873391, AA285170, W30901, AA620620, AI052471, N59279, W32455, W88914, W02805, N49069, AA011701, AA495857, 15 AA291157, H64286, W02140, AA151132, AA424817, AA702978, F10244, AA011595, AA284023, AA370051, H64287, N77050, R08028, AA076722, R08076, AA077262, W26330, AA314608, AA226724, AA996155, AA910691, N29000, T46864, W52139, H53499, AA400924, AA453245, AA443452, F08086, AA626790, H41302, W58016, T08471, AA631964, W37662, AA776714, AI014264, AA625515, W21271, AA481221, AA115318, 20 W44916, F06540, AA683109, AA334780, R57599, H54888, H54887, N83314, H40464, AA635153, M78146, R20489, AA402531, AA457311, R54170, F06238, H17015, AA701913, H05892, AA682749, AA974380, T77293, F06725, F06163, AA005274, H15716, AA324611, N49093, AA164237, AA535743, AA714166, W26721, AA018889, AA005168, Z21091, AA485008, AA088626, R98365, AA984447, H78732, H78719, AA130717, AA903551, 25 AA930937, AA244891, AA161830, AI036871, AA144413, AA475739, AA756477, AA457998, AA739462, AA272875, W12178, AA140301, W62054, AA562594, AA118740, AA985880, AA017814, AA797641, W14162, AA261676, AA017765, AI036166, AA111087, W62216, W77264, AA021856, AA017906, AA155283, AA023905, W71471, AA021791, AA021779, AA023884, W14525, AA030180, W36989, AA021734, AA510240, W47789, AA240161, 30 AA871668, AA260250, AA064077, AA036225, W75531, AA798457, AI005795, AA499468, AA799050, AA244987, AA044497, AA014148, W66907, W59409, AA615956, AA110661, AA138214, AA738624, AA184558, AA184177, AA137979, W10514, AA546639, AA536874, AA415708, AA415783, AA799270, AA726681, AA611109, AA403675, AA880983, AA611311, AA537547, AA537582, AA476109, AA064411, AI043118, AA435439, AA240059, 35 AA289228, AA197831, AA119538, AA444998, AA153300, AA896035, AA940187, AA427224, AA920304, AA555714, AA266357, AA543703, AA416019, AA790674, AA123106, AA386765, AI047413, AA432576, AA124696, H34137, AI030812, H31100, AA494741, AI012567, AA817763, AA800215, AA800306, AA892061, AA850654, AI011599, C82417, AA800027, C83273, AA800810, AI030120, H34068.

40

SEQ ID NO. 131:

AB002374, X51966, AL021367, AF036702, U88822, AF045642, U55815, AC004518, L13696, 45 AL021889, U75395, AC002554, AC003103, X90386, X04981, U58334.

SEQ ID NO. 133:

U48587, U68267, AF001906, AF033856, M33336, U73177, J03685, AC004743, AC004539, Z60442, N53159, N75331, AI042621, AA435593, AA608757, AA076290, AA662552, AA213762, AA630025, R57980, N24985, AA813323, H21646, H05642, AA359799, AA191039, AA318867, H15234, AA323419, N27160, AA636826, AA656934, AA726211, 5 AA619507, AA792581, W59642, AA035921, AA637995, AA667370, AA592134, AA637894, AA591158, AA756070, AA467467, AA739462, AA272875, AA214985, AA739083, AA914526, AA386742, AA919409, AI046649, W35790, AA016357, W97992, AA656026, AA414710, AI006426, AA673795, AA239695, AA285593, AA615757, AA038932, AA073580, AA103792, AA220731, C85146, AA867112, AA028705, AA118743, AI005830, 10 AA874206, AA451006, AA667719, AA637623, AA492608, AI048487, AA189854, AA116581, AA096759, R04321, R04399, Z48427, R04620, R04065, R04404, R04422, R03209, C51162, C44210, R05229, C49234, R03208, R04273, D75630, D75447, D75141, D74833, D74636, D74299, D70237, R05254, C42102, AA658642, AA685519, AA799735, C93660, AA685980, AA750619.

15

SEQ ID NO. 135:

AC005175, L12168, M98474, U94696, M88485, Z95972, Z81557, S54909, U59831, 20 AB002387, U59832, AC004221, AC003993, AA505656, AI004052, AA975150, AA904315, R39951, AA908198, AA348001, AA348002, R39437, R39435, D21034, AA365146, AA813999, F12674, AA226122, T50818, AA143492, AA337395, AA003016, AA475640, W78672, AA517530, W45934, AA915424, W54264, AA168145, W11712, D34652, U92753, Z84127, U92730, AA438286, AA978864, AA941236, F14527, D47303, D15953, AA202003, 25 AA979012, AA440964, AA736036, AA246888, AA940864.

SEQ ID NO. 137:

AF064604, L63543, AE000647, AF064804, AA443401, AA334624, H69413, H69440, H69851, AA167818, AA830102, N64831, AA947764, AA453748, AA453830, R52194, T30970, AA903211, T32140, T30969, W05727, AA024651, C18655, AA386236, T69012, AA442992, AA452775, AA292522, AA223531, AA221067, AA004165, AA538370, AA067626, AA104327, AA874150, AA450950, AA692789, AA798137, AA119093, AA240418, 35 AA542585, AA520648, AA519835, AI045289, AA520246, AA849945, T75681, AA520090, AA651385, Z25578, AA585901, AA395446, C90090, AA713116, AA851675.

SEQ ID NO. 139:

40

M24603, X02596, Y00661, M15025, X06418, U07000, X52829, M19730, M30829, X52831, M30832, X14676, X52828, X52830, S72479, L02935, M64437, M17542, L19704, U01147, X07537, X14677, X14675, M17541, M17543, M19695, X76485, AF023460, X89600, U19759, AF039083, X71790, AC004679, AC002076, AF035456, M99565, Z72005, Z79997, AL021154, 45 Z98259, AC003108, L13706, AF018254, M69197, U67228, Z75887, U14661, M84472, AC005200, AC001228, AC004761, Z95124, AC002540, Z79699, AE000926, U43572, U51281, D82351, AB013379, U34879, AC002425, AC004598, AA338585, AA333142, AA126116, H55543, H55721, R54267, H55614, H55699, H55545, AA744741, AA772917, H29052, AA573543, T16608, AA773472, AA775416, AA601919, AA470534, AA351521,

AI015318, AA351163, AA486365, AA470985, AA565376, AA344993, R92629, AA553555, AA740903,  
AA090392, H94289, AA457592, AI033503, T69709, R94066, AA040853, AA065296,  
AA349058, AA703759, T05287, H86075, AA043080, AA669995, AA737864, AA726753,  
5 AA727154, AA546638, AA222375, AA671227, AA032828, W14856, W33789, AA874531,  
AA982359, AA965843, AA965737, AA800560, AI035042, AA941796, AA390686, AA735566,  
AA802030, C74658, AA246925, AA803435, C27952, AA944566, AA817514, C83561,  
AA978443, C24959, C82705, C72516, H34014, AA712916, AA820781, D21893, D15866.

---

10

SEQ ID NO. 141:

S45630, AF007162, X95383, AF029793, M55534, X60351, S77138, S77142, S74229, X60352,  
M63170, M24906, M28638, J03849, M12016, M73741, U04320, M12014, M24092, L08078,  
15 S53164, U26661, M12015, M25770, U16124, X87114, D29960, X14789, X85205, M17247,  
U05569, U66584, M26142, U47921, U47922, V01219, X95382, AP000007, AE000869,  
AB009529, AF062537, D10457, S37449, X59541, AA742442, AA704135, AA211774, N35834,  
AA482745, AA211607, N28898.

20

SEQ ID NO. 143:

U78082, L78810, U14573, AC004068, U07561, M98511, AC004673, AA613346, AA953216,  
AA305926, H92800, R98218, AA629543, AA297666, AA302982, AA429481, AA126005,  
25 AA837225, AA856961, AA946848, F13749, AA847704, AA833896, AA621381, AA833875,  
AA459962, H22141, N73060, AA491955, H28477, AA224463, AA708753, AA152253,  
AI028510, AA483606, AA992126, T54783, AA715075, AA568204, AA715173, N64587,  
AA570740, AA984258, AA904211, H94979, AA085410, AA599352, AA488620, AA574442,  
AI049845, AA593471, AA393830, AA610509, AA297145, AA113272, AA835889, AA655005,  
30 AA689351, R93919, AA613761, AA550989, AA303054, H07953, AA713815, AA827490,  
AA865262, AA461308, H73550, AA657835, AA362349, H82679, AA378682, AA577755,  
AA663472, AA490602, AA857673, AA347114, AI049630, AA086150, AI017251, AA877992,  
AA084609, AI050760, AA808998, AA503258, AA613138, AA603156, AA513293, R97934,  
AA610233, AA654874, AA501867, AA604831, N22058, AA492114, T50676, AA757426,  
35 AA584482, AA789192, AI004591, T50694, AA862227, AA594145, AA728911, AA847499,  
AA159978, AA534204.

40

SEQ ID NO. 145:

Z69030, L42375, U37352, D26445, U38192, U38191, U37770, U38190, U37353, U59418,  
L76702.

45 SEQ ID NO. 147:

L07872, L34544, L34543, X17459, S63463, M81871, L08904, U60093, U60094, L07873,  
L07874.

SEQ ID NO. 149:

U07158, X85784, AJ000541, U76832, L20821, AC003089, AC004504, AF049236, L40609, AF053765, L14677, Z94056, Z18277, AE001073, U85969, X79283, AJ223473, AA632339, 5 AA732931, AA610556, AA973899, AA598896, AA531553, AA826535, AI000209, AA290836, AA642711, AA085920, W22275, D20744, UMGS017, AA487868, AA487869, AA085919, 682 AA833281, AA619252, C77541, AA691960, AA763615, AA164051, AA259589, AA060475, AA254185, AA666705, AA272597, AA152985, AI011416, AA850008, H33152, AA941811.

---

10

SEQ ID NO. 151:

M13451, X03445, X03444, M13452, X66870, X76297, X14170, X99257, D14850, D13181, L12399.

15

SEQ ID NO. 153:

U28918, U17714, X82021, Z98048, D17265, D17092, Z82022, L04270.

20

SEQ ID NO. 155:

X54859, Z86000, AC003043, X77738, X77737, L35930, AC003084, AC000111, M89651, 25 AP000031, U67588, X03991, AC004660, AL010261, V01515, M86251, L29376, Z71417, L78442, U00921, AC004692, AC003698, AE000742, Z49128, Z73417, Z71418, AA424638, AA442084, AA805748, AA835489, AA713576, AA502343, AA765949, AA812332, AA831755, AA417718, AA776946, AA152295, AA731660, R48791, AA150237, N51650, N52616, N52586, AA533556, AA305755, AA760877, AA729913, AA731659, AA910594, 30 AA904521, AA372550, R48898, N50390, R08712, H83343, AA417867, AA090407, AA009846, AA927286, AA678135, AI033148, AI041408, AA235113, AA398662, M62215, W27276, AA885767, AA460155, AA742433, R19908, AA040696, AA555240, AA043160, AA292844, R53160, AA536080, N70013, N35921, N70096, AA277029, AA560610, AI046716, AA237153, W15784, AA547132, AA231089, AA170968, D46090, C61892, 35 C64408, D34777, D35175, D35914, D37381, AA559708, D37143, C60784, AI008855, AI021808, AI009216, D68214, AA220863, D70434.

40

SEQ ID NO. 157:

U43195, U58512, U61266, D89493, U36909.

45

SEQ ID NO. 159:

AF069442, AF001295, M13820, M10081, AB010077, AA491075, AA446881, AA588390, AA479958, N20112, R86178, R97894, T64868, W68074, AA365195, AA928749, AI037069, AA882303, AA791693, AA822133, AI037224, AA404165, AI036575, AA499662, AA864136, AA561223, AA183703, AA647218, AA792208, W48100, D40621, AJ225487, AA294595,

02866, H35041, AA944944, AA597316, D26977, D68334, AA685934, W88345, AA964819.

## SEQ ID NO. 161:

5

K01546, AE000468, X95549, AC004014, Z81584, L19201, X94244, X06932, U39479, X13301, AC000386, U80847, X86737, U39478, AA883211, AA610050, AA774254, AA280736, AA926725, AA459300, N55370, AA233666, H90342, T66839, H91250, AA856968, R92873, AI034196, AI014787, AA910410, AA088535, AA230765, AA467238,

10

AA397279, AA420226, AA396042, AA200070, AA165873, AA762534, AA067133, AA065429, AA185092, AA572057, AA111387, AA175824, AA881071, AA571692, AA104279, AA733670, AI008804, D86670, C67200, D41938, AA141467, D35894, AI001643, AA957220, T37355, T18792, D47809, W21723, AA898504, AA951903, AA661025, AA949796, AA990685, AA661449, AA948837, R04787, D16046, AA439636, AA246769, AA978829, D43523, T02021, AA803212, D22651, AA201227, AA694728, AA891643, D23309, AA820831, D41871, W21774, D16065.

15

## SEQ ID NO. 163:

20

X15183, AF028832, D87666, J04633, L33676, X07270, U94395, M27024, M30627, X16857, X07265, M36830, M30626, AA669137, AA725103, AA890496, AA314095, AA554815, AA313331, AA730100, AA214035, AA876412, AA121630, AA314010, AA927532, AA968674, AA679253, N66271, AA558907, AA309988, AA587079, AA075436, AA160964, AA205657, AA214083, AA130903, AA917032, AA149623, AA857523, AA889843, AA305037, AA491055, W73240, AA255644, W73295, AA765431, AA178947, N66409, AA074895, AA306976, AA075052, AA075387, AA130892, AA857443, AA405942, AA629891, AA152004, AA129550, W56527, AA513807, AA703828, AA223171, C75280, AA889155, AA854676, AA773063, AA774999, AA152392, AA307057, AA316954,

25

AA657352, AA522607, AA188113, AA026444, AI003623, AA312717, AA312400, T64299, AA178992, AA228992, AI042136, AA457613, AI032857, AA164461, AA625127, AA807763, AA130815, AA054695, AA937097, W93534, N67875, AA526896, W52802, AA527942, N34251, W28646, AA668543, AA496091, W52511, AA070581, AA306826, AA120908, AA699607, AA086423, N72134, AA630369, AA564649, AA046806, AA666249, AA306893, AA225404, AA127417, AA854951.

35

## SEQ ID NO. 165:

40

M23885, AF047868, AF017732, AB005249, Z83229, AF026483, U97194, Z67884, Z67881, X13481, X07651, AC001226, AC002542, AB002307, AA984684, AA017533, AA306600, AA261957, F08123, R17885, AA282208, H85861, H85836, AA593150, H87276, AA057384, AA243602, AA013399, AA374926, AA721341, R88896, AA021538, AA101740, AA375314, AA090398, H86058, AA984556, AA215816, AA092672, AA034243, AA328017, F11174,

45

AA261777, N40306, W21253, R02386, AA349225, AI038487, H98027, AA385878, AA075431, AA375596, R77638, T73214, AA310841, AA062331, AA919318, AA606883, 373 AA174568, AA790426, AA423321, AA647673, AA109549, AA396473, W16215, AA105538, AA061105, AA066766, AA462773, AA555644, AA499452, AA389523, AA245036, AA475340, AA880992, AA198965, W11981, AA509705, AA237414, AA646230, AA673569,

AA239037, AA672620, AA915168, AA863498, AA123378.

SEQ ID NO. 167:

5

Y11251, AF030234, AF043945, L40407.

SEQ ID NO. 169:

10

U33822, X61838, AA572230, AA589570, AA929790, AA104830, C81582, AA271190,  
AA290278, AA543616, AI043207, AA107832, AA958460, AI020992, AA795905, AA277468,  
AA475069, AA111610, AA389139, AA154163.

15

SEQ ID NO. 170:

D32050, D16969, AC004423, S81497.

20

SEQ ID NO. 172:

D86982, L07131, M14544, AA296228, AA318436, AA296234, H88394, W26642, AF038251,  
AA394101, N35855, N56791, N35444, AA147382, AA647547, AA939939, AA895989,  
25 AA122437, AA277698, W75741, AI036117, AA980469, AA033178, AI006694, AA980625,  
AA033190, AA175922, AA172918, AA895209, AAC28700, AA416048, AA175247,  
AA217057, AI045760, R64866, D40836, D41873, AA509279, D40089, AA114361, AA751642,  
AA848690, AA800525, AA802510, C24001, AA841755, AA882663, D40069, AA433358,  
D40199, AA958134, AA072494, AI008727, AA618978, AA848687, C21884, AA113662,  
30 AA945653, AA660093, C58446, AA908068, AA532100, AA264560, AA426658, AA097169,  
AA751535.

SEQ ID NO. 174:

35

Z81364, AC003033, AE000665, AA570483, AA532739, AA526905, AA725306, AA134415,  
AA651838, AA481316, AA600310, C04532, AA004615, H20713, AA913640.

40 \_SEQ ID NO: 176

M14695, X02469, X60012, M14694, X01405, K03199, X60015, X60016, X60011, X60018,  
X60019, X60014, X60013, X60020, AF021816, X16384, L20442, U48957, U48956, X60010,  
S83123, X90592, U74486, D49825, X81704, X81705, U43902, AJ001022, D26608, D16460,  
45 L37107, AF060514, S77819, X13058, D86070, U50395, U07182, U90328, Y08900, M75144,  
Y08901, U74487, U48619, K01700, M13872, AF051368, U48616, U48618, X00741, M13874,  
M13873, X01237, U48617, M22887, X54156, U94788, M13115, U41451, U41452, X01236,  
K02110, U59757, M22895, M13118, U63714, M22888, M13116, M22894, M13117, U51857,  
U37120, U62133, U07020, X91793, L07907, U26741, U59758, S78456, L23634, U22145,

X00879, X00881, S77930, S78457, U66066, D63399, U44835, L07908, S57234, D63405, L27630, M22896, U07019, D63404, M13119, X13057, D63402, M75145, D63401, L12046, AA373960, H61357, AA358870, AA928725, H90357, AA302363, R94782, W24142, AA448185, AA004394, AA376121, AA151197, W76037, R82621, AA157426, AA343323, 5 AA301677, AA002978, AA966981, AA839925, AA982800, AA030090, D77246, AA184043, AA142337, AA529242, AA874521, AA048636, AA168688, AA032325, AA881664, AA529082, AA874036, W06121, AA520602, R86591, AA848372, D37535, AA433405, C72790, AI009692, C25990, X91325, D71516.

---

10

SEQ ID NO: 177

X71973, AC004151, L24896, X82679, AF045769, AF045768, U37427, D87896, S80257, L12743, X76009, X76008, AF035264, AC004707, AA633971, AA588533, AA992915, 15 AA399565, AA435883, AA454856, AA877822, AA780281, AA767205, AI016009, AI038211, AA417004, AA400522, AA676416, AA526712, AA431710, AA496292, AI041168, AA451858, AA709014, AA588291, AA758304, AA188597, AA149890, AA815107, AA670145, AA026421, AA468719, R67030, AI024175, AA719171, AA708025, W15350, AA431760, AA887242, AA888171, AA769788, AA948489, N54495, AA453278, AA887529, AI014760, 20 AA287946, AA862377, H44827, W72726, N22715, AA662838, AA187825, AA780142, N70623, AA503741, AA024544, AI023537, AA834970, AA062885, AA991970, AA576623, AA722713, AI014758, AA765436, AA633498, AA507435, C01757, N70601, AA314727, R62311, AI004483, R81700, W60860, AA621104, H51422, N33007, AA046316, H20797, R70369, AA724141, AA694532, H20024, AA627821, AA448392, H93528, AI015880, 25 AA453376, AA977808, AA576363, AA838346, N78626, AA648742, AA305364, H20123, AA024543, AA864931, AA946666, AA417190, W73759, AA815325, AA128171, AA809918, AI039304, AA718260, AA088979, AA403403, W85396, AA222552, AA839828, AA071896, AA109679, AA470211, AA219887, AA816136, W83835, AA064566, AA606943, AA034666, AA270485, AA457957, AA571899, AA050132, AA510431, AI020265, AA590096, W97284, 30 AA691964, W78537, W08051, AA435081, AA020097, W15024, AA008493, AA208204, W53741, AA512604, AA049396, W64741, AA756852, AA048836, AA038639, W14765, W10901, AA920385, AA791715, AA647984, AA690893, W75172, AA184727, AA036383, AA275344, AA619559, AA059803, AA575700, AA967063, W83433, AA203908, AA959416, AA222749, W15727, AA684313, AA286343, AA145935, AA137494, AA272180, AA472719, 35 AA208001, AI006169, AA240906, D19204, AA276329, W59005, AA445679, AA510539, AA222929, AA144725, AA413110, AA268012, AA492769, AA545011, AA204126, W17735, AA516923, AA270092, AA518734, AA475396, AA108883, AA014248, AA221781, AA051598, AA667607, AA048854, AA623999, AA397087, AI006246, AA122798, AA675710, AA462388, AA606840, AA516903, AA407638, AA222968, AA064375, C25916, AA941583, 40 C94734, AI011423, AA893085, AA964072, AA957524, AA963336, AA956783, AI014112, AA894190, C20441, AA231739, D68624, AA964536, AT000114, D22968.

SEQ ID NO: 178

45

Z50194, U92983, U44088, AC003101, X72892, AF035444, M32474, AF019953, AC001228, Y15443, AF001294, U12418, X06956, M31176, AF015277, AF002708, R43556, AA088367, AA313553, H92530, AA376262, T09403, AA814143, R75643, AA479005, AA773048, AA507143, AA402127, AA430292, AI015600, AA393069, AA463606, AA885498, AA460759,



- AA398766, R48359, AA426107, AA909990, AI017459, AA076224, N39533, AI026941,  
AA412699, AA292828, AI024759, AI016910, AA573306, R48386, AA065307, AA774549,  
AI016070, AA884918, AA431512, AA306051, AA476440, AA292924, AA621059, AA411830,  
AA405079, AA596171, AA989987, AA472637, AA690249, AA691927, AA792720,  
5 AA637983, AA020137, AA097337, AA117759, W17615, AA285526, AA111347, AA208823,  
AA879750, AA413058, W33316, AA161891, W41259, AA511152, AA027481, AA020252,  
AA033106, AA965045, D41048, AI031042, D48020, AA925258, D40853, AA945674, C19585,  
AI013412, T15040, AA541011, AA990782, AA851306, AA540938, T23386, AA783863,  
AA979035, AA951002, AA438957, AA979006, AA978995, AA800046, AA556128, C27411,  
10 D15562, T20348, AA966363, AA949269, AA785774, AA728671, D16092, N37869, D48782.

## SEQ ID NO: 179

- 15 Z50194, U44088, U92983, U12200, AC004147, X82200, Z81527, M63469, Z35494,  
AC003018, AL021408, M92281, AA576961, AA088194, AA258396, D79238, N27861,  
AA857168, N35619, N40634, N73008, N21585, AA332511, D56582, D12298, AA641278,  
Z21892, H92531, AA113084, N76094, N31261, AA227469, AI038845, AA520982, R16910,  
AA380178, AA238335, AA255056, AA981576, W35008, AA238181, AA739268, AA061742,  
20 W59335, AA049688, W64993, AA900759, AI009938, AA850887, AA525635, W59849,  
AA660463, AA841121, N96072, AI044112, C24662, C23675, AA924228, AA841227.

## SEQ ID NO: 180

- 25 D87072, U52191, L25270, L29564, L29563, D83144, U73169, AC003036, AC003049,  
AC004149, Z67744, AC001224, AA215514, AA262849, AA443396, H22815, AA171842,  
W04162, AA682330, C18753, W01583, AA837306, AA348779, AA492008, AA639340,  
AA194216, AA371937, AA449692, H09426, AA782728, AA991707, AA085238, AA194029,  
30 T03226, AA867674, AA009101, AA726511, W90906, AA028401, W54470, AA266581,  
AA033314, W10534, AA475518, AA606629, AA616625, AA212796, AA184252, W53289,  
AA240033, AA238131, W98696, AA038374, AA286525, AA265063, AA212145, AA165741,  
AA146458, AA021970, AA870293, AA790962, AA770919, AA175098, AA080286, W87105,  
AA125485, AA870257, AA793909, AA673390, AA032500, AA059905, W84293, AA511672,  
35 W97898, AA881777, AA275041, AA184232, AA178368, W65008, AA734943, AA717871,  
AA220560, AA184416, AA163885, AA086951, AA032510, AA014341, AA637318,  
AA239778, AA237322, AA213090, W82825, W70807, AA542256, AA445570, AA444522,  
AA656978, AA162676, AA051548, AA038373, AA032527, AA840207, AA273185,  
AA260228, AA051553, W56956, D89319, AI045498, D24681, AA801346, AA962980,  
40 C71711, AA824977, D69290, AA264695, D68955, C74586, C72683, AA750613, C83111,  
AA568036, C82978.

## SEQ ID NO: 181

- 45 U52191, D87072, AL022162, AL008710, Z83850, AF055066, AC004254, L25270, AC003013,  
U53141, AL021728, AC004997, M38703, AC004020, U91321, AP000041, Z69921, AC002551,  
D87016, X54171, AF055481, X83213, L05489, AC003018, AB009056, AC000069, L81890,  
AD000685, AC003031, AC003030, Z99715, AF043301, AE000664, AF007544, X15547,

- D86999, AL008633, AB010395, Z37999, AC002295, AC002397, AC003033, AL021878, X97651, AC003957, M33387, AP000053, AL009048, AC003046, M88481, Z74044, L81611, X75284, AA261777, AA864889, AI028372, AA465521, AA846126, AA262767, AA204697, AA215375, H51473, AA506924, AA502898, AA377435, AA113921, D62650, H22351,
- 5 H51430, H22382, AA465101, C18637, W39589, AA327239, R40889, AA873226, AA460243, AA621037, H59359, AA725078, T74486, AA862185, H67186, AA830023, AA443869, AA828666, N38846, AA345908, AA525207, AA609559, AA628297, AA663165, T94643, R05610, R71812, D80739, AA677926, W04238, AA136929, AA137096, AA565152, N46909, N70293, W74325, H63794, N29751, N27675, AI036841, AA840246, AA833063, AA615467,
- 10 AA499981, W87950, AA968257, C81326, AA575315, AA198626, AA177237, W83702, AA032570, AA143960, W76885, C81402, AA624565, C81370, AA790518, AA462820, AA198544, AA619130, AA763304, AA408798, AA596445, AA388381, AA208825, AA465777, AA123453, AA163963, AA272421, AA387128, AA119389, AA004024, AA048596, AA178783, AA408740, AA462137, AA763879, AA104287, AA536743,
- 15 AA189208, AA474607, AA119325, AA930111, AA591279, AA110900, AA511170, Z36370, AA915493, AA799054, C76955, AA475573, AA409880, AA608394, W40814, AA177344, AA139563, AA185921, AA103715, AA087674, W84211, AA413195, AA472014, AA718145, C76233, AA797276, W10301, AA982386, AA607099, AA123778, AA189429, W76777, AA408982, AA274777, C79658, AA543812, AA290119, R75266, AA060786, AA544015,
- 20 AA537758, AA237310, R02919, AA858989, AA695540, AA848230, H74756, AA979969, AA924645, AA964247, AA952521, AA997784, T36746, AI012428, AI045470, AI045012, AA963263, T02640, AA514153, AA685633, H35763, AA246073, AA875723, T38957, AA685944, T36529, AA951284, C93715, AA735681, T36773, AA926109, AA899894, D22301, T36428, T38528, AA550561, AA824716, AA818438, AA951260, AA698348,
- 25 AA695342.

SEQ ID NO: 182

- 30 U93574, Z84720, U93573, AC004389, AC003080, Z79699, Z83313, M22334, AC002379, Z81145, AC002523, AC004554, AC003015, U93572, AC000057, U09116, AC004769, AC005195, AL009173, Z82195, U93564, U93571, AC004216, U91324, AC004615, AC004513, Z68344, AC002556, Z97181, AC003085, AC003106, Z83827, AL009177, AC004048, L11910, U93563, U93566, AC002541, U93569, U63313, AF011889, AC002385, Z93403, AC002416,
- 35 AL021069, AF051934, Z81001, Z81008, U93562, U93570, AC002076, AJ229042, AC004081, L19092, L19088, M22333, M80343, AC004673, M80340, AC000111, AC005248, AC004029, AC004103, AC004519, AC002461, U93567, U93565, AF003535, Z98754, U93568, AC003689, AC002106, AC003678, AL020991, Z92844, AC002083, AL008987, AC004142, AC004592, AF064865, AC004014, AL030998, AF036235, AC003090, AC002468, AC004381, AC002426,
- 40 AF064862, Z75741, AP000034, AC002980, AE000659, AC004694, AC003667, AC002381, Z73639, Z70042, AC004677, AD000091, Z68289, AA484141, AA164621, AA604538, AA481622, AA496279, AA984452, AA767964, AA984451, AA736469, AA515158, AA179891, N23655, AA613334, AA804967, AA167491, AA502863, AA736468, AA865990, AA557741, AA577777, AA434354, AA077547, R87956, AA130610, AA458671, AA515147,
- 45 AA249258, AA577804, AA370897, T51061, AA558463, AA564249, AA654792, AA937758, R14500, AA218754, AA808887, AA552844, AA610148, AA360863, AA131481, R14820, AA679387, AA604228, AA219167, AA528769, AA167264, AA211914, N44646, AA583372, AA332799, AA434071, AA768268, R67785, R11143, AA160931, AA492047, AA483907, AA018362, AA565136, AA148747, AA446799, T68944, AA622590, AA148366, AA321287,

AA641586, AA099918, AA323660, AA776660, T07174, AA126741, AA564135, C15230,  
T04929, AA812939, AA083809, AA825623, AA203220, AA381013, T79543, T06217,  
AA211212, AA622951, AA548059, AA737238, AA714581, N87426, T57704, R57964,  
AA776667, AA618000, T79544, AA085646, AA493616, AA334289, AA258289, AA151096,  
5 AA827704, AA507666, AA549581, AA168679, AA185032, AA589251, AA981377,  
AA756236, AA240074, AA656748, AA542310, AA560477, AA675415, AA386570, W64580,  
AA674272, AA265898, AA260903, AA386558, AA666609, AA445433, AA681947,  
AA473373, AA098141, AA056918, Z97827, C06649, AA686628, AA817952.

---

10

SEQ ID NO: 183

AF027390, AC005191, AC004111, AL022394, AC002379, AC004748, AC005214, AC005164,  
AC004223, AC004536, Z81145, Z75896, AC003119, U91325, AC003051, AC003075,  
15 AC005246, AC000112, U73465, Z82204, AP000044, AC004768, AC004740, Z77723,  
AC004103, AD000091, AC002451, Z95437, AF055066, AC004519, AC000365, AC000120,  
Z97206, AC005138, AL009172, AC003091, Z68746, AL009173, AC004061, U69729,  
AC000357, Z97987, AC002429, AP000025, AC002385, AC005165, AC003667, AC002478,  
AC005166, Z73361, AC002524, AC004613, Z73986, AP000026, Z81311, AL021921, D87003,  
20 D87023, Z84720, AC003099, U96409, AC004746, AC003953, AC002402, AL008987, Z99128,  
U82828, AC003083, AC004388, AC005176, AC002274, AC002523, AC003086, AF007262,  
AF017257, AC002080, AL022162, Z73496, AC002066, Z68326, AL021408, AL009029,  
AC004711, AC004503, AC004259, Z72001, Z74696, Z82216, AC002122, Z75741, AC004226,  
Z92543, Z81008, AC004800, AF003530, AF036235, Z97181, AC003100, AC002486,  
25 AC001608, AA902828, AA767353, AA659014, AA932087, AA085707, AA130476, W58442,  
AA778304, AA055654, AA176355, AI025602, H20876, AA663566, AA911409, AA129986,  
AA092309, AA846188, AA099788, AA854527, AI027421, AA889273, AA501873, AA811111,  
AA946637, W49501, AA081993, AA862481, AA130536, T16214, N64574, AA508451,  
N20521, N94967, C17235, N24958, AA493998, AA807609, AA961590, AA347740,  
30 AA709024, AI004961, AA779937, AA132536, N26540, F00936, N90055, AA493735,  
AA287329, AA718969, N76274, AA629837, AA128858, AA610791, Z36956, AA724159,  
AA157033, AA771711, AA771730, AA247446, W19865, T57073, W45291, AA166854,  
AA121916, AA581340, W85828, AA226414, T06365, N77920, AA342331, AA132716,  
AA953572, AA095194, T55378, AA559950, AA492106, R33901, AA070814, AA082150,  
35 AA136576, AI034217, N79992, AA057222, T06932, AA506944, W58428, AA847621,  
AA091111, AA602447, AA782144, AI028382, H67259, AA460715, W04638, AA174085,  
AA169142, AA864823, AA136637, AA189081, AA745961, AA139949, AA445227,  
AA691595, AA500499, AA871750, AA670701, AA511259, AA140374, AA271307, C86865,  
AA118561, AA881298, AA110813, AA840390, AA212585, AA415184, AA511258,  
40 AA666541, AA646864, AA710697, C77932, AA959489, AI046681, C80208, AA645685,  
C85334, AA265422, AA636275, AA288729, AA275057, AA500995, AA177980, AA458336,  
AA289940, AA415335, AA919414, AA982224, C76059, AA008758, AA124270, C06869,  
AA686909, AA686863, D42585, C92939, N61954, AA676153, H33166, AA892085, C06689,  
M79751, AA413311, AA817771, AI007834.

45

SEQ ID NO: 184

X03350, D00137, M24317, M21692, M25035, M12272, X04299, M12963, M12271, M81807,

X04350, X69799, M64864, M64865, L38286, X15451, D11064, L15703, AF040967, M24310, L38285, X15449, D11061, M24313, X15452, L38287, L15463, L15464, L15465, L15466, L15461, L15462, D11063, X15448, L38284, X15450, M11307, M15327, D11060, D11062, M29519, X72792, M32657, L38283, M24308, X15447, M37067, M22675, M18476, X76342, 5 U09623, U07821, L47166, L33179, U20257, M22673, M18474, X98746, S78778, M22676, M18477, M32656, M59902, M22611, M22674, M37066, M18475, U16287, M32658, U76729, D11059, M84407, M68895, M37068, M29520, M29517, AJ002389, U16288, U48373, U48375, U48374, U48366, U48367, U48369, U48370, U48368, U48371, U48376, L15704, X90710, X54612, AJ002388, AF037560, AF037561, M15943, H47306, R97630, AA359078, T39956, 10 T40080, W92014, R94266, T29660, T88752, H63211, AA007648, N58628, AA007475, AA663081, R59157, AA635750, N31819, AA418597, R26836, R63871, W16454, AA082493, H43616, AA333940, AA136854, AA224328, R32171, W70169, AA906156, R63943, T29861, AA970185, N99157, AA633611, R74522, AA418659, AA158647, T32414, AA947591, H41930, W71743, AA497928, AA882105, AI048277, AI043149, AA222882, AI047365, 15 AA462832, AA475744, AI048891, AA445677, AI048278, AA238275, AA880474, AA920194, AA002848, AA087915, AI048182, AA572490, AA919920, AA674346, AA674324, AI048841, AA570972, AI048171, AA221141, AI047473, AA726292, AA089234, AA572562, AA575421, AA882120, AA920473, AA537724, AA537981, AA895827, AA521772, AA068475, AA163751, AA065690, AA089214, AA469859, AA895136, AA881990, AA763618, D85324, 20 Z47709, W43337, Z17958, D40569, AI043714, AA849180, AA686762, D42196, C27176, C28623, C21867, D15347, C26420, C26057, C27762, T38704, N82383, AA696634.

## SEQ ID NO: 185

25 AF012072, Z34918, D12686, AF012088, L22090, AJ001046, AC002343, L05146, Y10804, AC003951, U66160, U64827, D90909, M21538, X84923, Z47812, AA191463, AA113265, AA632286, AA744722, AA743070, AA213861, AA609958, AA303191, W74161, W31772, AA488254, AA740463, AA455452, AA609344, H46968, AA618058, AA936118, AA806686, 30 AA857299, AA447352, AA262384, F18818, W31201, AA161498, AA437201, AA078878, AA226209, AA722666, AA488220, AA226545, AA908395, AA512922, AA715375, H40724, N42261, AA576035, AA455451, AA171367, C77834, C80644, C80833, C78609, AA166246, AA607383, AA445222, AA899256, W36120, M79676, D36745, D28092, C60443, C65586, C62715, D71476, R05114, AA963758, C19374.

35

## SEQ ID NO: 186

40 AF012072, U93694, U04282, Z83838, AJ229042, AF051934, Z74351, X84162, AC004238, Z49209, Z74352, AF005675, AF005694, AF039057, AF005673, Z74072, U04280, AF005670, AF005697, Z48432, AF005682, AF005681, Z48717, Z74071, AF007943, AF014948, X56564, AF005679, AF005674, AF005683, AF005669, AC004414, AF005680, AE001040, Z68748, U53337, AF005672, AF005678, AF005684, U88166, Z75714, U62943, U41624, U29157, AC004016, U88173, AC002541, AF067619, Z99281, L12722, Z72831, AF029791, AB008681, 45 AF005685, L04132, L05514, AC002465, AF005671, R50684, AA937078, AA457547, AI017135, H89366, AA903329, N34551, AA425182, N34541, H99291, D59286, D62357, D62145, AA665666, AI014367, N92469, W79550, N25822, AA457747, N66282, N29478, AA490854, AA526320, N75058, C21162, H89553, AA468635, AA609043, N44557, W05794, C15377, AI000693, H93075, AA705169, H06933, W88709, AI017605, R42683, T68350,

- N95594, AA776703, AA147928, AA528395, AA083916, W25684, AA013334, AA172736, AA209088, AA163459, AA289612, AA982479, AA137939, C86651, AA254210, AA445488, R75462, AI019204, AA509441, AA002277, AA655398, AA571528, AA139333, AI021204, AA537146, AA451453, AA537280, AA271829, AA612432, AA276965, AA433546,
- 5 AA516947, D18988, AA762234, AA673901, W35735, AA623342, W41360, AA821737, C76479, AA759947, AA958949, AA960071, AA003958, AA063879, AA166186, AA397202, C76476, AA177406, AA615429, AA968368, AA197396, AA254248, AA216884, AA608321, AA646552, AA832682, AA959933, AA960279, AA690108, AA270884, AA794425, AA178520, C76467, AA032352, C76067, AA960423, AA959668, AA267923, C85907,
- 10 AA589522, W53243, W16283, C79956, AA893170, AI009093, U30849, AI029468, AA964477, AA998982, AA819125, AI009853, AI008017, AA193834, AA944429, AA658642, AA874889, C10511, C83963, AA997836, AI044502, AA542796, AA727986, AA728058, AA728034, AA257402, AA848180, AA728053, AA273092, AA842891, R82900, AA941899, AA550212, AA570819, AA848179, N43466, T18112, W51512, AA495115, F13984, AA728040, C94558,
- 15 AA848184, AA280453.

SEQ ID NO: 187

- 20 M64098, X65292, AD000685, AC004674, AC002390, AE000865, AC002401, W19633, W37981, W31034, AA359356, W44329, W73049, AA381485, AA214033, AA641745, W01130, AA479864, AA482668, AA401033, AA828905, N42463, AA441839, W23803, AA316561, M61993, W25087, AI024044, AA300166, W49676, AI025179, W68791, F00883, AA146949, W01317, H45860, AA434028, AA600742, AA128972, R10793, N44804, N80615,
- 25 AA887217, AA046842, W67840, W61058, R88120, H45012, H24653, H44345, W58142, H28895, W80837, AA721685, AI042406, T78959, D53374, AA767635, AA057608, AA946654, T54011, AA335450, AA960756, N30752, AA083591, AA381662, AA341843, AA102142, AA454749, AA382049, AA369065, AA047013, AA843494, AA641801, AA400954, AA946847, AA594410, AA884045, AI003618, H44546, H43740, W37982,
- 30 N57289, AA878271, AA875915, R72666, AA291061, AA991318, AA025686, W49677, AA477495, AA846174, AA279218, AA577098, H39554, N53985, H42595, T61029, N67624, N24525, AA989491, AA743117, AA541753, AA114948, AA290671, AA593962, AA781318, AA510140, W34551, AA832661, AA068830, AA072174, AA915680, AA797967, W87974, AA199235, AA097251, AA397017, AA543154, AA403638, AA450715, W70682, W99218,
- 35 W96859, AA870726, AA797012, AA789632, AA647678, W44312, W70581, AA240843, AA289855, W70954, AA067654, W45866, AA500569, AA798641, AA475794, AA915281, AA896524, AA388231, AI048915, W98758, AA879972, AA098075, AA636830, AA063925, AA537589, AA067923, R74742, AA794586, AA199522, AA140460, AA575302, AA575283, AA241190, AA008420, AA050156, AA537346, AA438310.

40

SEQ ID NO: 188

- M64098, AA603107, AA583290, AA614017, AA098837, AA148086, AA057676, AA551220,
- 45 AA593938, AA128973, AA160012, AA526472, AI042406, AA995160, AA477495, AA704131, AA722544, AA505439, AA047013, AA180932, W73278, AA457697, AA113374, AA989491, AA403042, AA400954, AA594410, AA600742, AA428988, AA708708, AA564144, AA878271, AA434259, AA828165, AA411459, N68157, W57614, W44389, AA541600, N70299, W49677, AA083472, W37982, N93230, AA708699, AA946847, AA515284,

AA531317, T57842, AA441785, H70034, AA290671, H44547, W68699, AA279218,  
AA133142, AA649913, AA507239, AA115525, AA182561, C05839, AA160688, T03344,  
N67663, AA541753, AA149283, AA292051, AA434337, H58081, W57871, AA846174,  
H39203, N39259, AA887217, AA902746, AA960920, AA843494, AA402167, AA503604,  
5 H44346, N89879, N30752, N35500, H44960, H28205, T03299, W73049, R88214, AA641801,  
H51204, AA349512, AA401333, H64553, AA991318, N57289, N98489, AA064637,  
AA781318, T54271, T28082, H28896, AA066370, AA050156, AA388231, AA199522,  
AA240991, AA537589, AA914841, AA014371, AA521990, AA832987, AA718368, W97559,  
AA475794, AA288089, W98758, AA760582, C77790, W45866, AA863850, AA575283,  
10 AA839114, AA798641, AA879972, AA240843, AA681112, AA896524, AA289855,  
AA063925, AA098075, AI048915, AA709514, AA575302, AA611492, AA960365, AA020582,  
AA915281, AA794586, W44312, AA204006, AA575280, C85088, AA087994, AA450715,  
AA407960, W08948, W96859, AA543154, AA537591, AA762074, AA801657, AA955391,  
H31891, C73265, H34134, C71182, D40593, C23460.

15

SEQ ID NO: 189

U75653, U72937, U72936, U72938, AF026032, AF000153, U72900, AF000157, U72904,  
20 AF000154, U72901, AF000158, U72905, L33813, AF000155, U72903, AF000156, U72902,  
AF000159, U72907, U35238, D83975, D89151, D83976, AF027172, X82835, U90548, L23313,  
AF009513, Z49444, Z75550, L28827, AB009467, X55315, X95465, J05091, Z74874, L23312,  
U24233, Z49442, M33324, AE000584, U18650, Z83102, H51969, AA348912, H28513,  
H16150, H89861, R87885, AA758775, AA478585, AA731296, AA479322, AA703054,  
25 AA505847, AA401962, T26539, AA904382, AI028568, AA402025, AA683588, W44382,  
AA234051, AA825832, AA526914, AA548515, AA570719, AA502746, T99124, AA129431,  
AA795462, AA119710, AA475930, AA636654, AA983117, AA914011, AA690476,  
AA444530, AA930251, AA646231, AA550314, D37000, AA698955, AA957328, C46988,  
C69695, C69062, AA820935, AA924036, C94029, AA955102, AA263284, AI030621, T18236,  
30 D15320, X91693, AA752192, D15340, N21752, C93829, AA820757, C10997, R90106,  
C73999, C29036, Z34220, D67590, AA924715, AA392459, C64193, AA394704, C44965,  
C46353, D22841, W43492, AA925224.

35 SEQ ID NO: 190

U72936, U72937, U72938, U09820, U75653, L34363, U72909, AF000160, AF026032, D64059,  
L33812, U97081, U72911, U97080, U72910, X99643, AF059614, X56668, Z81534, L32954,  
AF019715, Z80215, AC004613, AC003049, Z85983, Y00789, AC004366, J05161, D37935,  
40 L25759, AP000053, Z46659, U28732, Z73546, Z74961, Z79600, U01844, U05314, AL021528,  
Z36019, X56772, AC002451, Z70678, Z97339, Z11115, J03585, AB002307, D14135, Z12139,  
X63578, AF003528, AC004470, AC002406, L05146, AF013614, AF016669, Z37093, M38468,  
Z50028, D14667, U15220, X51604, U69730, AC003058, X51678, Z78061, AA026415,  
AA026492, AA565477, AA334257, AA334400, W03358, Z43437, AA230308, W03379,  
45 W03380, AA553586, W27701, AA035437, AA423988, AA642957, N47911, W07601,  
AA297731, AA424028, AA431985, AA452037, AA742931, R07135, AA378282, AA807999,  
H04669, H51991, AA296920, AA167097, AA166771, AA781460, AA702780, AA877937,  
AA409657, AA462438, AA466795, AA432643, AA553106, AA839627, AA413977,  
AA611818, W45775, AA866914, AA517484, AA437824, AA119733, C89551, W61745,

- AA000578, AA542176, AA638788, AA204302, AA123494, AA239671, AA064096,  
AA138098, AA666764, W80002, AA032783, AA839384, AA572665, AA615560, AA929543,  
W53754, AA253722, AA275070, AA097018, AA097462, W20635, W76935, W11176,  
AA002851, AA039046, AA616970, W57270, AA032390, W14330, AA982254, AA620100,  
5 AA059798, AA220035, AA118612, W89810, AA755079, W48197, D28660, AA003116,  
AI048374, AA472437, AA839079, AA690479, W83517, AA469719, AA570969, W43426,  
AA728607, AA009334, C52642, AA940791, C51634, C54184, C43015, AA940686, C52004,  
AA949936, AA720413, C43206, C51719, AA440870, AA940687, AA542455, D33653,  
D27538, AA949937, D32984, AA098714, D42544, AA012052, AA850442, T36863, H37415,  
10 AA801243, N61107, AA945672, AA901373, AA752359, D42940, AA964785, AA925307,  
AA494739, T76076, AA801210, AA257210, H34173, AA012373, AA898389, W78683,  
AA253537, AA404810, Z36916, AA520493, Z30478, C22922, AA497210, C83830, AI034933,  
W00775, AA550279, T44623, AA567291, AA735572, H36274, AA051931, AA441268,  
AA949536, AA990963, AA545882, R04230, C43248, C68663, AA601762, AA689188,  
15 AA990980, AA902048, AA848939, AA944558, C69572.

SEQ ID NO: 191

- D42053, L28801, L06133, U27363, X82338, U29946, L06476, Z94801, X69208, M97936,  
M97935, U06924, D58723, AA447393, T79137, W22306, W27193, W26625, R91353, R14073,  
R35174, AA214490, T81841, W22572, AA323811, F13144, R02679, W26522, AA146711,  
N84513, AA828793, AA069801, T79229, W93450, AA884617, R98261, AA353908, W74516,  
W73267, AA151515, R76379, T85989, AA465258, AA150254, AA657429, AA565231,  
25 AA629291, AA758108, H95214, R68856, AA490187, H58974, AA152270, AA857750,  
AA479264, T87538, H40835, AA853726, W86466, N41906, N32565, H67429, AA046628,  
AA502921, W95916, AI033829, AA166775, AA310739, H94342, R98026, W95563, AI048328,  
AA433571, AA423080, AA644864, AA718458, AA543710, AI021250, W74901, W48016,  
W98370, W63833, AA009063, W71474, AA016581, AA107664, C22660, AA900295, C22396,  
30 AA943614, C13744, AI014096, R90357, AA852004.

SEQ ID NO: 192

- D42053, M64788, AF043700, AF016419, AC004499, L76554, AF003140, AF067220, R02266,  
AA654515, AA742462, AA447394, N72883, AA628966, AA236994, AA834615, AA446111,  
AA877651, AA576481, AA411511, AA889296, AA743851, AA973832, AA627820, N74271,  
AA766834, AA707912, T58626, H53387, F10747, R85475, Z39927, T81314, AA327582,  
F04353, H29869, H02136, AA883947, AA988154, T33950, R02561, H02034, F03110, T33768,  
40 R40198, N29923, AA099039, AA662568, R50833, AA402357, H88660, H88705, T78650,  
T58675, T33387, R40190, AA746798, N64451, AA860459, AA317017, D20369, H02744,  
AA099038, N55133, R39213, H29965, AA421884, H29865, R21463, AA505876, W69228,  
AA775741, R50030, AA639782, AA282899, H25797, AA026257, H50744, AA844425,  
AA587939, R46426, AA529438, AA590919, AA222198, AA268595, AA840494, AA914804,  
45 AA789963, W53978, AA244772, AA286589, AA052101, AA031209, AA518865, W53817,  
W66617, AA963771, AA859063, AA858714, AA735566, AA246925, AA390686, D24127,  
AA941796, AA901200, AA955950, AA955823, F14905, C95042, AA899670, AA963429,  
AA893891, AA542593, AA819039, AA944748.

## SEQ ID NO: 193

D82364, Z96104, AF044337, AC002350, AB009841, AB009840, AC002452, M16599,  
AC004532, X97051, X90568, AA159846, AA594263, N70387, R57953, AA230226,  
5 AA253265, R92717, D51239, AI033484, AA680398, R36604, AI027861, AA760658,  
AA995326, R25067, AA678211, AA931384, N21385, AA814528, AA165374, W03607,  
AA045228, AA180120, AA112755, AA100270, AA060863, AA673217, AA895087,  
AA940465, C80212, AA499699, W41638, AA067181, AA290141, AA920323, AA869442,  
AA060257, AA646775, AA017984, AA013934, AA277945, AA592138, AA682015, W20995,  
10 AA168403, W65638, AA939908, W08710, AA475829, W97829, AA754913, AA015405,  
AA386663, AA998973, AI044670, C27898, AA224665, AA899929, AA393010, AA224685,  
AA956804.

## 15 SEQ ID NO: 194

U35048, AJ222700, L25785, D82364, X62940, D49740, Z81128, AA464830, AA599821,  
AA553999, AA917943, AA976635, AA573908, N27936, AA664389, AI002974, N33791,  
AA873219, AA587785, AA535813, AA503808, AA889489, AA631692, AA855095,  
20 AA149819, AA533046, AA446460, N66371, AA160747, AA991470, N64128, AA838132,  
AA845460, AA906853, N45237, N46442, AA126267, AA084241, AA152048, H02610,  
AA160987, AA609858, AA554901, T03821, AA515986, N32501, AA928291, AA084520,  
AA669051, AA508083, AA450300, N92537, AA192881, AA888613, AA598465, AA507795,  
AA634078, AA412366, AA995956, AA019868, AA834976, AA533116, T35173, T03717,  
25 AA962273, T35302, N30679, AA953347, AA532667, R46464, AA316492, AA029139,  
F10754, N95003, AA935097, T33411, AA206918, N62084, AA808750, N57507, T33578,  
D25688, T91206, AA630181, H11073, AA574446, AA598493, T07972, N89996, H37764,  
AA026140, AA593046, R99117, AA599758, AA782803, AA564628, T23754, AA191470,  
AA532503, AA039756, T15466, R02169, AA598857, AA744887, AI050085, H44041, T15964,  
30 AA869151, AA207967, AA840235, W12743, AA221316, W18390, AA388237, W15040,  
C87096, AA139599, AA683908, W40979, AA023495, AA268967, C87700, AA137505,  
AA242471, AA389283, AA537629, D19293, AA589566, AA388914, AA270762, AA110435,  
AI036412, W54801, AA967148, C87390, AA674817, C86699, AA674079, AA108476,  
C87766, AA796807, AA546926, AA882325, W10711, AA671021, AA266036, AA606569,  
35 AA108497, W34822, W59345, W47841, C86982, AA960436, AI048667, AA822378,  
AA397283, AA426786, AA034902, AA624924, AA919292, AA038277, AA472859,  
AA815583, AI047972, AA675464, AI048029, AA571115, C77324, AA103712, AA799781,  
AA849213, AA800595, C23543, AA141869, H35460, AA253555.

40

## SEQ ID NO: 195

X98260, AC004668, D63784, U53208, AC004217, U00158, AL021918, M63718, AC003685,  
AB012130, L76665, U73395, L41267, X89893, U30272, L76663, L76666, U24075, U50546,  
45 L41347, U30274, L76672, L76667, AF022046, X94373, U31416, L41269, AF022047,  
AF022045, X97233, U73396, AF001887, AJ002103, U24078, AF022049, X89892, L76671,  
AF002255, X93595, L76661, L41268, AJ002104, U33328, AF022048, AJ002102, L76662,  
U32515, U24077, AC004633, L07648, L41270, X94262, L76670, L76668, X94374, M62698,  
X98858, U30273, U24079, U24076, AF001883, X97232, X94609, X93596, X97230, L76669,



U97179, L76664, U24074, AJ002105, X97231, AF022044, AL021368, U16824, AF067214, AC001462, L29389, Z97180, D44480, S80994, M64423, M64278, U29086, Z48483, AC002478, Z83223, U18385, Z81550, Z71255, M25481, U12980, AA337826, AA188700, N89413, AA954584, AA429406, D20011, T11010, AA708608, W25067, W38808, R86666, 5 C04536, T81614, R53773, AA137008, AA506680, AA683371, H69924, AA991350, R18239, T91842, H10763, H69900, AA655986, AA823236, AA623340, C81307, AA294124, C55948, C53035, C55126, C55546, C74428, AA406687, L33498, C07212, AA924466, AA563571, AA800701, AI012885, AA799448, AA542571, C71570, AA042402, C71640, AA924013, AA555371, AI008699, T02190, D72664, AA944558, D65812, D66368, T01369, AA979509, 10 D71236, T44205, T01827, D40672, C58618, W06125, C07201, AA606065, C46115, D40203, T01370, R04640, D71248, C72556, D71547, T01558, C91738, D72553, C07785, AI044627, C13152, C13100, D64746, D66766, D71651, D71383, C11108, D68214, D70434, R64982, C11146, C07159, T04838, C59680, C36053, C58548, C58131, R29854, C37817, M79626, C34637, C31764, AA098688, H31962, C08288, C08079, D72544, D72761.

15

SEQ ID NO: 196

X98260, D63784, U53208, AC004668, AC004217, U88173, S82426, Z71181, M96360, 20 X16259, U94848, AL008631, L22858, D11079, AL009197, M35027, AB001289, X69908, AA189125, AA911232, AA553955, AA639055, AA524380, D20011, AA543065, AA131089, AA631261, AA974199, N29844, D79259, AA833629, H16096, N57262, AA099831, AA134575, N49980, AA101187, AA602492, AA781579, N75345, AA131117, AI025027, AA481652, T55888, AA286766, AA376397, Z33555, AA375199, AA222952, C76144, 25 AA465751, AA267740, AA823236, AA623340, AA458394, AA186093, AA592692, C88240, AA645411, AA692798, AA673943, AI005822, AA839497, AI019274, AA217098, AA964764, C94149, C93858, AA520468, AA650884, T75921, Z33959, AA739671, AA991012, AA585033, AA246163, AA255395, AA111786, AA933444, AA933412, AA842447, AA471727, AA114405, AA570825, AA570895, AA991128, AA480733, AA842566, 30 AA255405, AA514157, AA246177, AA406723, AA109313, AA509291, AA273162, AA842066, AA991140, AA991141, AA246061, AA283471, AA508994, AA201262, AA246055, H74419, N97480, AA395498, T22427, AA945238, AA945650, AI034509, AA899000, F23033, T42287, Z30913.

35

SEQ ID NO: 197

U47742, AB002381, AJ000729, L42550, M33956, AC002991, X01380, X05424, K01964, AB003499, M32660, AA248767, AA219722, AA504689, R41711, AA296844, AA492416, R51283, AA049428, AA217923, AA607511, AA689975, AA015159, AA163336, AA791924, 40 W84145, W85185, AA097378, W18536, N28107, AA592602, AA543587, AA030663, AA881846, C81003, C80991, W08678, W66831, AA184127, W29542, AI013408, AA201942, C23941, T38919, AA042496, AA699041, AA699045, AA924655.

45 SEQ ID NO: 198

U47742, D45215, AC002531, Z81365, AC000363, AC002049, AC000354, Z99572, AA878434, N63358, F16898, H81239, AA777772, AA777633, W28526, AA612635, AA001784, AA599173, AA572806, N26278, W27839, AA187625, AA492285, W27783, R79573,

AA837952, W92573, AA736420, R63244, AA187468, AA525322, AA300947, AI015836,  
AA372599, W92572, R43233, T65924, AA769105, AA001783, AA583238, T64498, AI018263,  
AA642877, T80364, AA510934, AA510935, AA646611, AA204217, AA052802, W12771,  
W12992, AA870112, AI050661, AA637655, AA139991, AA237829, AA736031, AA818174,  
5 W66470, AA753486, AA618746, C54011, C59484, AA042149, Z47591, Z97742, AI008239,  
AA550555, AI029811, AA438705, AA113467.

---

SEQ ID NO: 199

10

L04733, M75147, M75148, M75146, U48359, Y14586, X69658, AF055298, L11013, D88672,  
U41356, U82207, U37100, X75972, X84047, M34270, AC003973, U40232, Y13714,  
AJ001448, X14820, D56386, AA326459, AA323263, M85516, AA410206, N99532,  
AA074408, F06922, AA853868, AA442752, W04244, AA429741, AA765313, AA635087,  
15 AA749266, AA036846, AA179452, AA306684, AA972742, AA002132, AA569330,  
AA848025, AA580719, AA324576, H91884, AA173544, AA230534, AA509865, AA647015,  
AA015415, AA611446, AA518630, W11435, AA615751, W40723, AA794060, AA839731,  
AA920796, AA637666, AA007747, AA403503, AA871286, AA980204, AA469753,  
AA560829, AA209821, AA615604, AA792287, AA270185, AI047789, AA467108, AA795217,  
20 AA617555, AA855214, AA943900, AA964280, AA997897, AA818427, AA944331, H35289,  
AA264390, C28173, R47083, D15606, AA753035, C29164, AA040981, T13853, T22855,  
D23570, H77210, C48820, AA042362, C08588, D75062, C72679, D39380, AA520864,  
C46247, AA598156, C43207, C28089, C41549, AA699284, N38494, C43868, C26816,  
AB002714, AA201585, D15360, C50288, C08807, C09524, C09302, C27909, C74054,  
25 C44856, D75996, D75759, D75259, AA697754, D49290, C48498, C46887, AA695529,  
C46167, C47812, C43571, AA801733, C42850, C42279, C42041, D35323, C41449, C40103,  
C27383, T02400, D37512, C08957, C26890, C09377, AI045731, AI044490, AA697888,  
C10151, C40182, AA597441, C20433, D28193.

30

SEQ ID NO: 200

L04733, AF037222, M75147, M75148, M75146, U48359, Y14586, AF055298, L11013,  
Z29645, Z29644, L24440, L24439, L24441, U40959, Z81007, Z99130, U53147, U83509,  
35 L00113, AF003493, AL023094, X66594, AL009204, H20962, H27867, , H21003, AA284075,  
W46349, , H27868, AA353853, AA228951, , AA933939, , AA345614, AI042244, AA508740,  
AA936551, , AA935112, R61106, R25832, T09254, R56336, AI003952, AA975443, T33488, ,  
AA620898, T33533, AA808155, AA888616, , AA449036, AA229380, AA810055, AA558736,  
AA460144, , AA836527, , AA247108, AA321862, AA683381, R35099, AA284169, R25813,  
40 W46165, M78613, AA188753, AA325754, H40608, T09255, AA813710, AA618295,  
AA361462, AA361472, AA830824, AA601211, AA410922, H16117, AA309172, AA270658,  
AA212157, W45752, AA117565, W88170, AA049655, AA030409, W10467, W81858,  
AA048063, W98588, AA059822, W29679, W62338, W81854, AA000386, W99868,  
AA734911, W16197, D77341, AA590149, AA272354, AA691900, AA899876, H33481,  
45 D70294, AA695675, AA614880, AA675937, AA680593, AA674127, AA934215, AA666451,  
AA917125, AA934333, AA680602, AA917285, AA825053, AA674133, AA934347,  
AA736361, AA680580, AA610975, AA934319, AA934250, R95352, AA917100, AA915850,  
AA720442, AA917301, AA934200, AA618801, AA614881, AA915862, H31037, AA618669,  
AA934241, AA917248, AA917217, AA720451, AA701722, AA683454, AA683426,

AA682179, AA682171, AA635215, AA625031, AA635214, L46433, AA934198, R95284, R95336, R84208, H31035, C90807, AA934244, AA934227, AA629448, AA917238, AA917223, AA625046, AA915819, AA901480, AA666460, AA675954, AA610984, AA917265, AA618665, AA610976, R95342, AA958298, AA934204, AA915853, AA720440, 5 AA683448, AA666424, R95953, R95952, R95945, R95359, R95317, H48183, AA934312, AA934302, AA934254, AA917293, AA629463, R95351, AA934346, AA915824, AA907981, AA666441, AA666428, AA614875, R95396, R95344, AA934310, AA675934, AA915857, AA720436, AA682173, AA680568.

---

10

SEQ ID NO: 201

L04733, M75147, M75148, M75146, U48359, Y14586, L11013, AF055298, U82207, U37100, AC002366, AC003973, M34270, X84047, Y13714, AJ001448, X14820, U40232, AA326459, 15 D56386, AA323263, AA410206, M85516, N99532, AA074408, F06922, AA853868, AA442752, AA524367, AA972742, AA580719, AA324576, AA173544, AA848025, AA036846, AA179452, AA635087, AA569330, H91884, AA749266, AA230534, AA509865, AA647015, AA015415, AA518630, AA611446, AA615751, W11435, W40723, AA794060, AA839731, AA920796, AA403503, AA980204, AA871286, AA637666, AA792287, AI047789, 20 AA467108, AA469753, AA617555, AA795217, AA560829, AA615604, AA450950, AA538370, AA221067, AA004165, AA655931, AA116611, AA914871, AA067626, AA107804, AA144111, AA943900, AA818427, AA964280, AA997897, AA944331, C28173, AA264390, C74002, R47083, T22855, AA753035, T13853, T02400, C10151, C09302, AA042362, C43571, AA598156, H77210, C46247, AA699284, D75759, C43207, AA520864, 25 C42041, AA597441, C08957, D28193, D35323, C44856, C09377, AA201585, D39380, C26816, C40182, AA697888, D15360, D75996, C48820, D75062, C48498, C47812, C46887, C46167, AA697754, AA695529, AI044490, H33296, C42850, C42279, C08807, C41549, C41449, C40103, C08588, C43868, H35289, D37512, C09524, AA801733, C72679, C50288, D75259, AB002714, N38494.

30

SEQ ID NO: 202

AF037222, M75148, M75146, U48359, AL009204, Z54173, AC004360, M93339, Z54174, 35 AA933939, AI042244, AA936551, AI003952, AA975443, AA935112, T09254, T33488, AA888616, AA620898, AA808155, T33533, F03186, AA975330, T33906, AA987289, T30145, AA972722, AA907223, R46830, R61829, R46810, R49486, T32146, T33506, AA364499, AA284075, W46349, H20962, H27867, AA228951, AA353853, H27868, AA345614, H21003, AA508740, R55809, N92239, AA017680, C14877, N90902, AA904910, AI049799, C02576, 40 C14616, AA040604, D81988, AA364393, AA897696, AA905071, AA810055, W98588, W10467, W81858, W18083, W29679, W18917, W29911, AA030409, AA048063, W45752, AA059822, AA049655, W88170, AA212157, AA117565, AA270658, W36050, AA051329, AA511037, W13503, AA230588, AA231106, AA624293, AA170741, AA388737, AA560869, AA110993, AA221530, AA869929, AA250568, AA944723, AA955073, AA531681, 45 AA494698.

SEQ ID NO: 203

- M75165, M12125, X06825, U29167, X58381, M81086, X12650, M87635, K02446, M23081, M64288, M23082, M64287, Z66527, M24635, S78854, L35107, M36337, M36336, X04690, M32441, M24634, X61273, Z66490, M17914, M17913, X04201, U33450, L25609, X66274, M19267, M19713, Z36788, M22479, X64831, X05276, M60667, M60666, M34135, J02780, J00910, M92304, V00893, Z24727, U04541, M12126, L00373, X02412, M23765, X02411, M23764, L00372, M19715, M19714, X52244, X61272, M87307, M34136, M60669, M34134, M60668, X52243, AF013612, L00375, X72859, L24775, L24776, L24777, M15044, X51626, M21224, U33449, S82383, M21223, X53753, X12369, L35239, X51625, X04588, X03541, L00374, Y00169, X51624, M21225, X51627, X57993, X16236, M15472, J00312, X16230, X57991, M16432, V00892, L00376, L35238, L00377, X54279, X54278, Z83313, M21226, AA640943, AA640697, AA467909, AA704139, AA197262, AA666145, AA669820, AA704070, AA594968, AA196231, F00526, AA595323, AA599517, AA373420, AA157609, AA069985, AA622022, F01115, D57262, AA595380, AA375886, AA283746, AA333336, AA341434, AA340705, AA670031, AA858221, AA359599, AA229593, AA194475, AA225258, AA588750, AA375884, AA394062, AA166737, T91493, AA622307, T48008, AA091366, W76573, W72570, AA599467, AA346260, AA373849, T19964, AA631155, AA341932, H46496, AA299082, F00980, F00784, AA374875, AA479560, AA179369, AA531086, AA603988, AA534759, AA558154, AA330919, AA224750, AA059453, AA613265, AA176790, AA147720, AA477400, AA180956, AA283684, AA911281, AA565346, T92451, AA635269, F00822, AA345989, AA167017, AA179035, AA133943, AA639079, F01064, AA327073, AA600092, AA374651, AA192132, W96503, T11706, AA192109, AA180975, W19118, C02894, F00502, AA188390, F00868, AA373237, AA091477, W76369, AA181411, N89162, AA192706, AA091727, AA197324, AA176792, AA791722, AA710866, AA816047, AA239722, AA240116, AA637356, AA636703, W64162, AA250531, AA266075, AA220317, AA221748, AA691397, W65567, AA537264, AA269855, AA231405, AA657173, AA463158, AA033007, AA717285, AA611244, AA673836, AA537820, AA212586, AA755615, AA690773, AA269859, AA222788, AA636872, AA230983, W62506, W58806, AA636258, AA066775, W78439, W18330, AA930703, AA030657, AA718228, AA238857, W44028, AA982880, AA168448, AA771434, AA597186, AA530744, AA238992, W88106, AA272336, W62359, AA656935, AA003859, AA530638, AA670772, W77305, AA509508, AA509486, W97271, AA616746, AA688589, W41329, W65816, AA612497, W62331, AA036588, AA288872, AA265919, AA616509, AA980428, AA066697, AA929425, AA463021, AA463053, AA241880, W62147, AA268742, AA656232, AA241879, AI020780, AA259705, AA222986, AA710117, AA060812, AA518492, AA463054, AA030944, W64070, AA541901, AA222372, AA717596, AA691787, AA222520, AA231425, AA144205, AA671454, AA656231, AA647302, AA153145, AA645321, C83482, C82626, AA605935, AA012678, AA012773, AA012719, AA892224, F14809, AA108301, AA012755, C82550, C83406, AA859305, AA566238, AA566648, AA566851, AA566286, AA566644, AA253539, AA821220, AA567134, AA802284, AA736065, AA264157, AA697049, AA695541, AA801636, AA697082, AA567410, AA263523, AA901166, C46287, C39436, T00780, C66376, AA697015, C44371, C70009, AA567812, D69675, AA263301, M79503, AA816806, AA555497, C66286, AA941527, AA979604, AA949211, AA696289, AA948946, AA390860, AA540494, AA949487, AA406880, N41272, AA264230, AA941657, Z81182, AA201467, AA978437, AA438386, N37112, Z81287, U30879, AA898275, AA685520, AA540848, AA820724, AA924036, AI008485, D85797, C13596, AA892978, AI010059, AA800950, AA440726.

M12125, M75165, X58381, U29167, X06825, K02446, M23082, M64287, M87635, X12650, M81086, M12126, Z36788, M23081, M64288, V00893, M24635, Z66527, L00375, V00446, X05276, Z66490, J02780, L25609, AF013612, S78854, X52244, X61272, X61273, X52243, X66274, L24775, M23764, X02411, X02412, M23765, L24776, L24777, L00382, M36337, 5 M36336, X64831, M22479, M34135, M34134, M60667, M60666, M60668, M60669, M34136, J00910, M21225, X51627, X72859, M32441, X04690, M24634, L00380, M17914, M17913, M15044, S82383, Z24727, L00377, L00376, X12369, M19713, M19714, M19267, M19715, L35238, X53753, U33449, L35107, X54279, Y00169, L35239, U33450, M87307, M21226, J02526, V00445, M21224, X51626, L00379, U04541, X04201, X04588, M69143, X57994, 10 X03541, X16237, M92304, V00892, M16433, L00374, Z83313, M15043, M12127, X16238, AA669820, AA640943, AA666145, AA704139, AA594968, AA595323, AA599517, AA704070, AA858221, AA670031, AA588750, AA166737, AA599467, AA622307, D57262, AA595380, AA229593, AA531086, AA603988, AA622022, AA558154, AA613265, AA069985, AA147720, AA565346, AA635269, AA167017, AA224750, T92451, AA070759, 15 AA342215, AA070760, AA102115, T48009, AA631155, AA747279, AA600092, AA468261, AA330919, AA747402, AA341434, AA533743, AA479560, AA639079, AA516177, AA534759, AA467909, T29630, AA059340, C01021, AA196231, AA327369, AA657481, T58571, AA194475, AA865934, AA157609, AA730981, T58532, W72570, H46496, AA299082, W76573, F00980, AA373849, AA299207, AA550766, AA229684, AA179369, 20 AA554522, AA554529, AA640697, F00138, F18504, AA059453, F17676, AA333336, AA197262, F16069, AA341932, AA699407, AA635501, AA194549, AA448329, AA176792, AA292342, F20460, T48008, AA514516, AA197324, AA970627, F01064, AA468706, AA453298, AA541765, AA329154, AA834112, F21577, AA345989, F00868, AA238992, AA980428, AA656232, AA222986, AA791722, AA208641, AA710866, AA530638, 25 AA710117, AA066697, AA816047, AA240116, AA239722, AA030944, AA958979, AA259705, AA637356, AA691397, W64162, AA636703, AA250531, AA221748, AA266075, AA220317, AA717285, AA530744, AA269855, W65567, AA537264, AA611244, AA265531, AA657173, AA231405, AA463158, AA033007, AA212586, AA755615, W40734, AA537820, AA673836, AA718228, AA269859, AA636872, AA636258, AA222788, W41052, AA690773, 30 W62506, AA230983, AA797470, W58806, AA066775, AA982880, AA030657, W18330, W78439, AA930703, AA409699, AA563146, W44028, AA238857, AA153489, AI006609, AA691787, AA667845, AA222520, AA003095, AA231425, AA222372, AA611396, AA717596, AA762568, AA871856, AA239616, AA597186, AA656231, AA530278, AA611447, AA717792, AA168448, AA671936, AA718774, W14085, AA670772, AA575261, 35 AA117289, AA003859, AA986011, AA027698, W10374, AA002960, W62253, AA616744, AA794213, AA445463, AA726372, AA855820, W53070, AA152584, AA152616, AA012678, AA012719, AA012773, AA012755, AA012714, AA605935, AA892224, AA858875, AA859305, F14809, C82550, AA800276, AA859231, AA955111, C83406, AA253539, AA901166, Z84024, C68528, C11929, AA850301, AA892279, AA850579, AA850481, 40 D66506, AA850300, AA859196, AI008798, H32166, W96784, D85797, U30879, AA263363, AA495717, AA978673, AA898617, C13596, AA540271, AA696190, C27749, AA949385, D71223, N61956, C42515, N82456, AA800319, D72548, W63411, AA698426, D71898.

45 SEQ ID NO: 205

M12125, M75165, U29167, X58381, X06825, M23082, K02446, M64287, M87635, X12650, M81086, M12126, Z36788, V00893, V00446, M23081, M64288, Z66527, L00375, M24635, L25609, Z66490, L00382, X05276, X61273, X52244, L00380, X61272, AF013612, L00377,

- X66274, S78854, X52243, J02780, L00376, M21225, X51627, M34135, M34134, X02412, M23765, M60667, M60666, M23764, X02411, M60668, M60669, M34136, M24634, X54279, M21226, X64831, L00379, X12369, Z24727, M22479, L24776, L24777, L24775, V00445, J02526, M19713, M19714, M19267, M19715, L35107, U33449, Y00169, M36337, M17914, 5 X04690, J00910, M17913, M36336, M15044, S82383, M16433, Z83313, U33450, M32441, M15043, X72859, L35238, X04201, L35239, X04588, M69143, X57994, X51628, X16237, M92304, AF034954, AF034953, X03541, U04541, X53753, M12127, M87307, U08008, X16238, AA669820, AA640943, AA666145, AA594968, AA595323, AA599517, AA704139, AA858221, AA670031, AA588750, AA704070, AA166737, AA599467, AA622307, D57262, 10 AA229593, AA595380, AA531086, AA603988, AA558154, AA613265, AA622022, AA147720, AA069985, AA565346, AA635269, AA167017, AA224750, T92451, AA070759, AA342215, AA070760, T48009, AA102115, AA747279, AA631155, AA600092, AA330919, AA468261, AA747402, AA533743, AA479560, AA639079, AA516177, AA341434, AA059340, AA534759, T29630, C01021, AA327369, AA657481, T58571, AA865934, 15 AA730981, AA467909, T58532, AA194475, AA196231, AA299082, H46496, AA299207, AA550766, AA229684, F00980, W72570, AA373849, AA179369, AA554522, W76573, AA554529, AA157609, F00138, F18504, F17676, AA059453, F16069, AA699407, AA176792, AA194549, AA448329, AA635501, AA292342, F20460, AA514516, AA197324, AA970627, F01064, AA453540, AA453298, AA612870, AA468706, AA541765, AA329154, AA834112, 20 F21577, AA524088, AA346234, AA176572, AA345989, F00868, AA238992, AA980428, AA656232, AA222986, AA791722, AA208641, AA710117, AA710866, AA958979, AA530638, AA259705, AA030944, AA066697, AA637356, AA816047, AA240116, AA239722, AA691397, AA265531, AA636703, W64162, AA250531, AA221748, AA266075, AA220317, AA269855, W40734, W65567, AA530744, AA717285, W41052, AA611244, 25 AA797470, AA537264, AA231405, AA463158, AA033007, AA212586, AA657173, AA537820, AA673836, AA755615, AA409699, AA563146, AA269859, AA636258, AA718228, AA691657, AA690773, W12550, AA636872, AA222788, W62506, AA691976, AA230983, AA681560, AA259588, AA667845, AA144205, AA222372, AA231425, AI006609, AA871856, AA762568, AA239616, AA611396, AA153489, AA691787, W18330, AA030657, 30 AA671936, AA445463, W10374, AA002960, AA726372, AA575261, AA656231, AA855820, AA616744, W53070, AA152584, W62253, AA152616, AA117289, AA530278, AA717792, AA794213, AA027698, AA611447, W14085, AA718774, AA409095, AA408132, AA016554, AA240225, AA881986, AA930685, AA574514, AA466570, AA222427, AA012678, AA012719, AA012773, AA012755, AA012714, AA605935, AA858875, AA892224, 35 AA859305, AA800276, AA955111, AA859231, AA253539, AA901166, Z84024, C83406, C82550, AA850301, AA850481, AA850579, AA892279, C68528, D66506, C11929, H32166, AA850300, AI008798, W96784, AA859196, AA263363, AA540271, AA898617, AA978673, AI010235, AA495717, U30879, C13596, D85797, AI044709, D49231, D71635, AA012148, N82456, AA520618, AA800319, D68812, D66459, D66859, AA567198, C71331, AA859869, 40 AA949033, D36698, C27962, C73985, D23014.

SEQ ID NO: 206

- 45 AA640943, AA704139, AA669820, AA666145, AA594968, AA704070, AA595323, AA599517, AA858221, AA670031, AA588750, AA166737, AA599467, AA622307, D57262, AA595380, AA229593, AA531086, AA603988, AA622022, AA558154, AA613265, AA467909, AA640697, AA069985, AA147720, AA565346, AA635269, AA167017, AA197262, T92451, AA224750, AA070759, AA196231, F00526, AA342215, AA070760,

- AA157609, AA373420, AA102115, T48009, AA631155, AA747279, F01115, AA375886, AA600092, AA468261, AA341434, AA330919, AA747402, AA533743, AA479560, AA283746, AA516177, AA639079, AA333336, AA340705, AA534759, T29630, AA059340, C01021, AA194475, AA327369, AA359599, AA225258, AA657481, AA375884, AA394062, 5 T91493, T58571, T48008, AA091366, AA865934, W76573, W72570, AA730981, AA346260, T58532, AA373849, T19964, H46496, AA341932, AA299082, F00980, F00784, AA374875, AA550766, AA299207, AA179369, AA229684, AA554522, AA554529, F00138, F18504, F17676, AA176792, AA176790, AA197324, F01064, AA345989, AA791722, AA710866, AA816047, AA240116, AA239722, AA238992, AA637356, AA636703, W64162, AA250531, 10 AA221748, AA266075, AA220317, AA691397, W65567, AA269855, AA537264, AA231405, AA657173, AA463158, AA033007, AA717285, AA611244, AA673836, AA980428, AA537820, AA656232, AA212586, AA755615, AA690773, AA269859, AA222788, AA636872, AA230983, W62506, W58806, AA636258, AA222986, AA066775, W78439, W18330, AA930703, AA030657, AA718228, AA238857, W44028, AA982880, AA168448, 15 AA771434, AA597186, AA530744, W88106, AA272336, W62359, AA530638, AA656935, AA003859, AA670772, W77305, AA509508, AA509486, W97271, AA616746, AA688589, W41329, W65816, AA612497, W62331, AA036588, AA288872, AA265919, AA616509, AA066697, AA208641, AA929425, AA463021, AA463053, AA241880, W62147, AA268742, AA241879, AI020780, AA710117, AA259705, AA060812, AA518492, AA463054, AA030944, 20 AA958979, AA541901, AA222372, AA717596, AA691787, AA222520, AA231425, AA144205, AA671454, AA656231, AA647302, AA153145, AA012678, AA012719, C83482, C82626, AA012773, AA012755, AA605935, AA012714, AA892224, F14809, AA858875, AA108301, C82550, C83406, AA859305, AA566238, AA566851, AA566648, AA566286, AA566644, AA955111, AA859231, AA800276, AA253539, AA567410, AA264157, 25 AA802284, AA697082, AA695541, AA801636, AA567134, AA821220, AA736065, AA697049, AA263523, AA901166, Z84024, AA697015, AA567812, M79503, AA263301, C66376, D69675, C39436, C44371, C46287, T00780, C70009, AA816806, AA555497, C68528, AA892279, C11929, D66506, AA850481, AA850579, C66286, AA850301, AA949211, AI008798, AA696289, AA540494, AA859196, AA948946, AA949487, W96784, AA264230, 30 AA406880, AA941657, N41272, Z81182, AA201467, AA438386, AA978437, H32166, AA941527, N37112, AA390860, AA979604, AA850300.

SEQ ID NO: 207

- 35 M90309, M96256, M90820, D82876, M95123, U62545, AF005383, U28379, Z81009, AC003982, AE000387, U57833, U58751, U97592, U64849, U61224, U10123, U10127, U10131, U10133, U60970, U10125, U61238, U23170, U69639, M29192, AA662136, D56262, AA316768, AA425201, AA180767, D52197, AA083191, AA196815, AA305565, AA211880, 40 AA099456, AA374550, D54751, AA830458, AA083192, AA904934, H16000, AA304018, AA330777, AA301380, AA661783, AA626635, AA507452, AA358517, AA910956, AI039677, AA805078, AA722415, AA133184, AA745880, AA662099, C03243, N88739, AA133371, AA091762, AA514235, AA946647, AA207200, AA934449, AA365011, T23842, AA652387, N63329, AA878427, AA402087, AA937256, AA687770, AA731077, AA515865, W67861, 45 W67804, AA809606, H42504, AA709130, AA757083, AA856607, AA287349, AI015577, W69692, N29511, AA701928, AA815104, AA929000, H80862, W46860, T09413, T28999, T78553, T95232, AI040805, AA040668, Z45180, R52744, R60482, AI014338, T87832, H18710, H52017, AA430392, F11745, R20592, R79671, R88938, AA007693, AA215302, T33317, H43493, N54811, AA189120, T33924, AA219658, AA446826, AA456142,

- AA436121, AA631802, AA828597, H05237, AA768012, AA120298, C89465, AA797358, W08380, AI047710, AA914388, AA389343, AA168959, AA118129, AA511602, AA399855, AA182992, AA797490, AA390161, AA403528, C79625, AA170032, AA217176, AA270198, AA003544, AA546962, AA734655, AA968213, AA689698, C80997, AA216978, AA891798, 5 AA799660, AA963593, AI043955, AI013191, AA893342, AA964549, AA818767, C55468, C53849, D71359, C11020, D34505, C66801, AA550626, D73050, T00102, D27494, D33998, D15421, AA875699, AA926207, AA893964, AI045611, AI009719, AI012274, AA946258.

---

10 SEQ ID NO: 208

- M90309, M96256, M90820, D82876, M95123, U62545, AF005383, AE000387, U28379, Z81081, U83435, AC004309, Z79999, AA626635, AA507452, AA662136, AA805078, AI039677, AA745880, AA722415, AA133371, AA514235, AA946647, AA207200, AA830458, 15 AA083192, N63329, AA878427, AA934449, AA133184, AA402087, AA937256, AA365011, AA687770, AA425201, AA731077, AA515865, W67861, AA910956, AA182893, AA358517, W67804, AA301380, AA652387, AA541535, AA523222, D57347, AA180767, AA886161, AA330777, AA876833, AA928813, AA662099, AA512845, D56262, AA809606, AA661783, AA904934, AA091762, H16000, AA305565, AA316768, AA196815, AA211880, D52197, 20 AA836660, AA083191, AA099456, AA815104, W69692, AI023221, AA287349, N29511, AA856607, H80862, AI015577, AA701928, W46860, AA929000, T61548, AA913564, W89194, R26007, AA446792, AI047710, AA118129, AA168959, AA914388, AA797358, AA182992, W08380, AA797490, AA120298, AA403528, AA390161, C89465, C79625, AA389343, AA399855, AA546057, AA881711, AA638279, AA200660, W10929, AA511602, 25 AA208053, AA170032, AA003544, AA823013, C80997, C80840, AA175939, AA795640, AA254102, C86617, AA718459, AA537290, AA891798, AA799660, AI013191, AA893342, AA964549, AA818767, AI043955, AA963593, C92667, C93100, T38634, R62100, F20116, AA559808, AA933417, AA979940, AA752523, C94469, AA395323.

30  
SEQ ID NO: 209

- M90309, M96256, M90820, D82876, M95123, U62545, AF005383, X67267, Z81081, AC003964, U28379, AC003982, AE000387, AL008715, U10131, U10133, U60970, U69639, 35 L75845, U57833, U79225, U64849, U23170, U61224, U58751, U61238, M29192, U10123, U10125, U10127, AA662136, D56262, AA425201, AA316768, AA180767, D52197, AA083191, AA196815, AA305565, AA211880, AA099456, AA830458, AA083192, AA374550, D54751, AA626635, AA904934, AA507452, H16000, AA304018, AI039677, AA301380, AA330777, AA661783, AA805078, AA745880, AA722415, AA358517, 40 AA133184, AA910956, AA133371, AA514235, AA946647, AA207200, AA934449, AA662099, AA365011, N63329, C03243, N88739, AA878427, AA091762, AA402087, AA937256, AA687770, AA731077, T23842, AA652387, AA515865, W67861, AA182893, AA523222, AA541535, W67804, D57347, AA512845, AA886161, AA928813, AA809606, AA876833, H42504, AA709130, AA757083, H80862, AA815104, W46860, AA856607, 45 AI015577, W69692, AA287349, N29511, AA929000, AA701928, H18710, AA007693, AA430392, F11745, R88938, R20592, R79671, H43493, AA456142, AA828597, AA189120, AA446826, AA631802, AA913564, N54811, AA768012, AA219658, T28999, T95232, R26007, AA215302, H05237, AA457346, AI040805, T78553, AA436121, AA120298, C89465, AA797358, W08380, AI047710, AA914388, AA389343, AA168959, AA118129, AA511602,



AA399855, AA182992, AA797490, AA403528, AA390161, C79625, AA546057, AA881711, W10929, W85287, AA170032, AA003544, AA217176, AA546962, AA968213, AA216978, AA270198, C80997, AA891798, AA799660, AA963593, AI043955, AI013191, AA893342, AA964549, AA818767, C11020, C55468, C53849, D71359, D73050, AA550626, T00102, 5 D27494, D33998, C66801, D34505, AA875699, AI045611, AA893964, AA926207, AI009719, AI012274, AA901041, AA946258, D15421.

## SEQ ID NO: 210

10 M90309, M96256, M90820, D82876, M95123, U62545, AF005383, AE000387, U28379, Z81081, U83435, Z69302, AC004309, Z79999, AA626635, AA507452, AA805078, AI039677, AA662136, AA745880, AA722415, AA133371, AA514235, AA946647, AA207200, AA830458, AA083192, AA878427, N63329, AA934449, AA133184, AA402087, AA687770, 15 AA937256, AA365011, AA731077, AA425201, AA515865, W67861, AA910956, AA182893, AA358517, W67804, AA301380, AA652387, AA523222, AA541535, D57347, AA180767, AA886161, AA876833, AA928813, AA662099, AA330777, AA512845, D56262, AA809606, AA661783, AA904934, AA211880, AA091762, AA305565, AA316768, AA836660, AA196815, AA083191, D52197, H16000, AA856607, AA701928, H80862, W46860, 20 AA815104, AA929000, AI023221, N29511, W69692, AA287349, AI015577, AA427663, R26007, AA446792, T61548, W89194, AA913564, AI047710, AA118129, AA914388, AA168959, AA797358, AA182992, W08380, AA797490, AA120298, AA403528, AA390161, C89465, C79625, AA389343, AA399855, AA881711, AA546057, AA638279, AA200660, W10929, AA208053, AA170032, AA823013, AA003544, AA891798, AA799660, AI013191, 25 AA893342, AA964549, AA818767, AI043955, AA963593, AA875699, H76320.

## SEQ ID NO: 211

30 M90309, M96256, M90820, D82876, M95123, U62545, AF005383, Z81081, U28379, AC003982, AE000387, U83435, AC004309, U60970, U61238, U69639, U57833, M29192, U10133, U61224, U64849, Z79999, U58751, U10123, U10125, U23170, U10127, U10131, AA662136, AA626635, AA507452, AA805078, AI039677, AA745880, AA722415, D56262, AA425201, AA133371, AA514235, AA946647, AA830458, AA207200, AA083192, 35 AA316768, AA180767, AA878427, N63329, AA934449, D52197, AA133184, AA402087, AA083191, AA937256, AA196815, AA365011, AA687770, AA305565, AA731077, AA211880, AA099456, AA910956, AA374550, D54751, AA515865, W67861, AA904934, H16000, AA304018, AA301380, AA330777, AA661783, AA182893, AA358517, W67804, AA652387, AA541535, AA523222, D57347, AA662099, C03243, N88739, AA091762, 40 AA886161, AA876833, AA928813, T23842, AA512845, AA809606, AA836660, AA757083, H42504, AA709130, AA815104, AI023221, AA856607, W69692, AI015577, N29511, AA287349, AA929000, AA701928, W46860, H80862, F11745, R20592, H52017, AA215302, AA456142, H43493, AA189120, AA446826, AA913564, H05237, N54811, AA219658, AA768012, R26007, AA631802, T28999, AI040805, T09413, AA828597, T78553, T95232, 45 AA040668, AA436121, AA120298, C89465, AA797358, W08380, AI047710, AA914388, AA389343, AA168959, AA118129, AA511602, AA399855, AA182992, AA797490, AA403528, AA390161, C79625, AA881711, AA546057, AA638279, AA200660, W10929, AA208053, AA170032, AA546962, AA968213, C80997, AA823013, AA216978, AA270198, AA217176, AA003544, AA891798, AA799660, AA963593, AI043955, AI013191, AA893342,

AA964549, AA818767, C53849, D73050, T00102, C66801, AA550626, C55468, D34505, D27494, D71359, D33998, C11020, AA893964, AI009719, AA946258, D15421, AA875699, AA926207, AI012274, AI045611.

5

SEQ ID NO: 212

U33818, U75686, D12799, X57483, M27072, Z48501, Y00345, X65553, AF032896, U68096, X75959, AF001290, AC000374, AL008725, AC002468, Z99571, AE001162, X02868,  
10 AC002426, U61983, AC002994, AC004654, X97249, M55163, U24491, M62322, AF010151, AC004068, AC004784, U10438, AA158440, AA194420, AA188891, AA486375, R17538, F00298, H18542, T28812, R17340, AA196312, AA196938, F00102, W37521, H25084, Z21267, R17367, T77286, T27011, H08705, AA379415, R96399, W74246, R19420, AA247691, AA312133, AA285253, AA152064, AA361741, AA351480, AA401953,  
15 AA188750, AA056307, T62784, AA171870, R87216, AA101951, T69963, AA377926, AA486626, H65031, H22721, AA091008, T62932, AA373063, W40155, H78922, AA385613, H94776, R52413, R56744, H78328, H94769, AA314666, AA303852, AA376845, AA774116, W39453, H23386, AA366534, D56258, AA056400, AA318252, AA379760, AA347167, R91800, C03993, N56760, H25628, H94770, D82637, AA361546, AA354644, AA180522,  
20 AA114086, AA313472, F07481, W02399, T26991, AA354673, AA367226, R12837, AA368385, AA149671, W19520, T91469, AA165091, H73529, AA382206, AA736555, T96776, R85578, AA360664, AA146756, AA517715, AA549198, W45901, AA530373, AA068153, AA794203, AA681546, AA543470, AA920538, AA541855, W48104, AA545226, C81574, AI020619, AA545223, AA467691, AA407351, AA080540, AA589633, AA059627,  
25 AA239102, AA543952, AA144201, AA413709, AA561318, AA645633, AA041692, AA794553, AA684154, AA855593, AA117203, AA560746, AA655813, AA549355, AA543742, AA672755, AA098209, AA529650, AA217996, AA067786, AA674118, AA065421, AA068210, AA109586, W65980, AA529434, AA473398, AA647192, AA399911, AA572052, AA617584, AA571125, AA688594, W77696, AA537244, AA560874, AA645902,  
30 W56921, AA473387, AA124214, AA222575, AA473517, AA108250, AA154026, AA051730, AA562058, AA110011, AA546821, AA145742, AA798579, AA789909, AA645194, AA183483, AA638251, AA867607, AA445059, AA607843, AA553063, C80232, AA921604, AA562884, W70720, W62179, W71834, W65821, AA031045, AA231604, AA562224, AA041626, AA517821, AA717160, AI037666, AA591443, W75448, W62769, AA162363,  
35 AA798415, AA681784, AA667343, AI028973, AI030229, H56873, AI007576, W59838, C31022, AA979102, AA698277, AA566362, AA698275, R90213, C34066, C36087, AA680472, D15397, C64582, R86582, R86522, C27111, C36743, C35897, AA566574, C38254, C30288, R86469, AA979898, T43578, AA415121, C72197, C19527, R86465, AA750079, AA193786, R29962, D65527, W23328, AA566423, C55391, C11243.

40

SEQ ID NO: 213

U33818, U75686, D12799, X57483, M27072, Z48501, Y00345, U10455, AF032896, X65553, AF001290, X75959, U68096, U68094, AC000374, AL008725, AF043297, U61983, AE001162,  
45 AC002426, AC002468, Z99571, AC001645, M62322, AF010151, L19418, U10438, AC004068, U24491, AL021961, L05109, U50065, M38019, X97249, M55163, AA486375, AA158440, F00298, AA196312, AA194420, Z21267, AA188891, R17538, AA453382, AA453284, AA375867, AA171870, AA188750, AA486626, T62784, AA312133, AA247691, R19420,

- W74246, AA351480, AA285253, AA152064, AA361741, AA373063, AA056307, AA361546, R87216, T69963, AA377926, AA101951, H18542, T28812, AA220979, AA319539, H65031, AA384795, H22721, AA380413, AA422010, AA091008, T62932, AI004148, R17340, W40155, AA385613, AA318252, D82637, AA361702, AA382298, AA361898, N86589, 5 AA196938, AA367226, AA318103, R85578, AA304761, AA356885, M78295, T66254, AA340702, AA085890, H30431, F13450, T85189, AA360664, AA083991, AA916946, N95514, AA094447, AA146756, AA517715, AA530373, AA068153, W48104, W45901, AA549198, AA794203, C81574, AA675536, AA545226, AA681546, AA413709, AA589633, AA794553, AA645633, AA543952, AA080540, AA920538, AA655813, AA560746, 10 AA543742, AA855593, AA059627, AA144201, AA239102, AA041692, AA561318, AA117203, AA684154, AA543470, AA549355, AA541855, AA672755, AA529650, AA098209, AA067786, AA674118, AA217996, AA547472, AA261638, AA068210, AA065421, AA109586, W65980, AA110011, AA183483, AA162612, W35997, AA638251, C80232, AA571125, AA162363, W62769, W75448, W99071, AA667343, AA033491, W66633, 15 AA755612, AA387191, AA692410, AA727586, AA048661, AA051437, AA217183, AA386779, AA656576, AA727531, AI028973, AI030229, Z71862, AA684843, H35169, H56873, AI007576, W59838, AA439587, AA979103, AA940632, AA735861, AA696026, AA390979, AA802472, AA816582, AA538639, AA695329, AA202584, AA696576, AA539606, AA539099, AA439983, AA941996, AA949560, AA942271, AA950752, 20 AA978967, AA538584, AA979102, AA941013, AA439362, AA940867, AA201233, AA263555, AA698775, AA439514, AA539726, C31022, AA263809, AA948939, AA391644, AA202460, AA951608, AA697265, AA804029, AA801635, AA263953, AA978695, AA440542, AA820598, AA567211, AA441090, AA441331, AA201345, AA803058, R90714, R90213, AA680470, AA698275, AA566362, AI035122, AA698277, D41636, C38254, C53650, 25 C55391, C64582, D15397, R29962, W23328, AA944626, D24277, D41589, R86522, AA680472, AA818616, D24141, D40735, W03989, C27111, AA979898, R86465, D65527, AA819137, D46757, D39435, AA193786, AA566423, C72426, R86469.

30 SEQ ID NO: 214

- U33818, U75686, AF050157, AC004140, X57483, AF032896, M27072, X65553, AF043297, AC004673, X75959, Y00345, AF001290, Z48501, L14644, AF004282, AF038613, AF068865, M97812, Z82068, Z81570, AA876341, AA745823, AA757071, AI016337, AA580267, H97478, 35 AA523769, AI004460, W58446, AA995123, AA906016, N67730, AA218964, W58481, AA745487, AI002469, N33241, AA946914, R96357, W37536, N21366, N32946, AA158441, AA665959, F22228, AA836484, AA291176, AA196183, R94183, AA761561, H97393, AA632152, C02223, T64875, H97408, AA872007, H18434, AA189107, AA399466, AA575883, D53740, R39560, T27010, T27506, AA192177, T17055, H24885, AA621511, 40 Z21262, AA746979, R42720, T30509, T34307, AA293382, AA350071, T89408, N73829, T92004, N70721, AA092470, AA938979, AA847618, AA055563, AA095836, AA715804, T32576, AA486221, H98021, N31316, AA194566, H98034, R94184, Z17346, AA308822, W00872, AA886735, AA301502, AA749059, AA772448, AA824475, AA813387, AA411260, AA411185, W90707, AA553396, AA331013, AA047652, AA675896, T50370, AA729392, 45 W60261, H41953, N87739, AA033548, AA431839, W58521, AA007137, AA301744, AA978233, AA746819, AA462194, AA260606, AA008245, AA198212, AA189192, AA240441, AA414348, W98490, AA016494, AA691010, AA623846, AA511096, AA656757, AA675223, AI050266, AA435090, AA466884, AA435437, W10945, AA266895, AA267701, AA266882, AA608041, AA608040, AA407350, W35888, AA543129, W66988, W11964,

- AA794417, AA170349, AA710366, AA560598, AA222621, AA607770, AA117196,  
AA117197, AA497794, AA655917, AA863935, AA690541, AA050116, AA561346, AI020705,  
AA267316, AA616897, AA688511, D76926, AA118144, AA575633, AA407008, W57260,  
W97241, AA499168, AA589023, AA407163, W66681, AA596527, AA591993, AA008270,  
5 C80705, AA759821, AA426846, AA474199, AA607312, AA106783, AA759930, AA117944,  
AA272487, AA434838, C78518, AA409986, AA797916, AA574848, AA216911, W89434,  
AA139140, AA967240, AA166066, AA560843, W84301, AA563137, AA590504, AA538443,  
AA596775, W70725, AA242468, AA271319, AA124706, AA271429, AA438185, AA545226,  
AA517208, W15034, W43967, AA959868, W71912, C76466, AA617221, AA389144,  
10 AA799943, AA875662, AA891138, AA891359, AA963788, AA606181, AA605910,  
AA606211, AA606151, AA566626, R62127, AA893752, AI008277, AA852037, AA945749,  
AA899385, AA859407, AA926018, AA900233, AI009672, W35650, W43098, U83076,  
AA850230, AA925882, AA735360, R04551, AA894297, T67354, M89321, C44938, D36988,  
T20410, R62043, C43025, T15008, AA264836, AA851992, AA899881, AA901370,  
15 AA850384, C50073, AA996808, AA799495.

SEQ ID NO: 215

- 20 U33818, U75686, AF050157, AC004140, X57483, M27072, AF032896, AF043297, X65553,  
AC004673, AF001290, X75959, AF004282, L14644, AF038613, Z82068, Z81570, AA745823,  
AA876341, AA757071, AI016337, AA580267, H97478, AA523769, AI004460, W58446,  
AA995123, AA906016, N67730, AA218964, W58481, AI002469, AA745487, R94183,  
N33241, AA946914, R96357, C02223, N21366, W37536, AA158441, N32946, F22228,  
25 AA665959, AA836484, AA291176, AA196183, AA632152, AA761561, H97393, T27506,  
D53740, T64875, H97408, AA872007, T30509, Z21262, AA575883, H18434, AA399466,  
AA189107, AA293382, T27010, R39560, AA621511, T34307, AA192177, T17055, H24885,  
AA746979, AA095836, AA092470, AA938979, R42720, T89408, AA350071, H98021,  
N73829, N31316, T92004, N70721, H98034, AA847618, AA055563, W00872, AA715804,  
30 AA308822, AA194566, T32576, AA331013, AA486221, AA886735, AA772448, AA749059,  
AA813387, AA824475, AA411260, AA411185, W90707, AA553396, AA047652, AA301502,  
T50370, Z17346, R94184, W95592, W03576, AA729392, AA462194, AA260606, AA008245,  
AA240441, AA198212, W98490, AA189192, AA414348, AA016494, AA511096, AA691010,  
AA623846, AA435090, AA675223, AA656757, AI050266, AA466884, AA266882, AA435437,  
35 W10945, AA266895, AA267701, AA608041, AA608040, W35888, W71912, W11964,  
AA543129, W66988, AA794417, AA170349, AA560598, W66681, AA222621, AA607770,  
AA117196, AA117197, AA497794, AA655917, AA863935, AA690541, AA050116,  
AA561346, AI020705, AA267316, AA560843, AA688511, AA616897, AA407163, AA545226,  
AA575633, AA589023, AA407008, AA499168, W84301, W97241, AA967240, AA596527,  
40 AA591993, AA008270, C80705, AA759821, D76926, AA426846, AA474199, AA607312,  
W57260, AA759930, AA117944, AA272487, AA434838, C78518, AA409986, AA797916,  
AA574848, AA216911, W89434, AA139140, AA166066, AA106783, AA118144, W70725,  
AA563137, AA590504, AA538443, AA710366, AA596775, AA271319, AA242468,  
AA438185, AA271429, W43967, AA517208, AA124706, AI049037, C76466, AA959868,  
45 AA409993, AA799943, AA875662, AA891138, AA963788, AA891359, AA606211,  
AA606181, AA605910, AA606151, AA566626, R62127, AA893752, AI008277, AA945749,  
AA852037, AA899385, AA859407, AA926018, AA900233, W35650, AI009672, W43098,  
AA735360, R04551, C43025, AA264836, AA899881, AA851992, U83076, R62043,  
AA850384, AA996808.

SEQ ID NO: 216

U75686, U33818, Y00345, Z48501, X65553, D12799, X57483, AF032896, M27072, U10455,  
5 M38019, L05109, U68093, AF001290, X75959, U68094, AL008725, U68096, AC000374,  
U24123, Z50110, AF043297, AE001162, U61983, AC002468, AC002426, AC001645, Z49066,  
L19418, Z99104, D26185, AL023496, X97051, J04560, X54815, X54547, AJ006158, Z38059,  
U07228, U34884, AJ006152, AJ006156, U51243, U02604, U49845, AF010151, AA486375,  
AA375867, AA196312, AA158440, AA453382, AA453284, AA220979, AA319539, F00298,  
10 AA318103, AA422010, AA486626, AA171870, AA188750, AA361702, Z21267, AA312133,  
T62784, AA255906, AA361898, W74246, AA247691, R19420, AA373063, AA285253,  
AA351480, AA361741, AA152064, AA056307, AA361546, AI004148, AA384795, AA358393,  
R87216, AA377926, AA101951, T69963, N86589, AA248355, H65031, AA091008,  
AA382298, AA380413, H22721, T62932, W40155, D82637, AA422136, AA318252,  
15 AA385613, AA194420, T19111, AA367226, F13450, T66254, AA340702, H30431, AA304761,  
AA356885, AA085890, T19451, AA916946, AA146756, N21835, W76571, AA291606,  
AA281761, AA987923, AA186762, AA517715, W48104, AA675536, AA068153, AA530373,  
AA261638, W35888, C81574, AA162612, W99071, AA727586, AA727531, AA545226,  
AA413709, W35997, AA183483, AA589633, AA794553, AA645633, AA543952, AA080540,  
20 AA547472, D77409, AA756055, AA655813, AA543742, AA560746, AA684154, AA117203,  
AA059627, AA561318, AA239102, AA144201, AA041692, AA855593, AA549355,  
AA067786, AA674118, AA529650, AA217996, AA672755, AA098209, W45901, AA549198,  
AA065421, AA068210, AA794203, W65980, AA109586, AA895401, AA110011, AA795409,  
AA638251, AA840242, AA644770, AA571125, W75448, W62769, AA217183, AA103034,  
25 AI028973, AA942271, AA951608, AA979102, AA941292, AA940632, Z71862, AA978967,  
AA949560, AA948939, AA978577, AA978695, AA941470, AA820598, AA979103,  
AA950752, AI030229, AA816582, AA539099, AA804029, AA390345, AA439983, AA698004,  
AA941013, AA538584, AA439362, AA441205, AA940867, AA567213, AA735831,  
AA263953, AA263555, AA441331, AA802472, AA441090, AA263809, AA438551,  
30 AA202460, AA539606, AA697265, AA391644, AA698775, AA539726, AA735861,  
AA440542, AA567211, AA201233, AA390979, AA538639, AA696576, AA695329,  
AA820079, AA202584, AA201345, AA696026, AA439514, AA802164, AA201654,  
AA439587, AA803058, AA941996, AA801635, AA684843, H35169, D75214, C62333,  
D35431, C46263, D35533, C66673, C39459, D35888, D36845, D37554, C39840, C42713,  
35 C48422, C51205, C40386, C40859, D35317, D36624, C43542, D36210, D36425, C47685,  
AI007576, R90714, AI035122, AA660085, C08701, D39435, C49711, D40735, D41636,  
D46757, C08440.

40 SEQ ID NO: 217

U33818, U75686, AF050157, AC004140, X57483, AF032896, X65553, M27072, AF043297,  
L05109, M38019, AC004673, Y00345, Z48501, AF004282, L14644, X75959, AF038613,  
Z82068, Z81570, AF068865, M97812, AF001290, AA876341, AA745823, AA757071,  
45 AA580267, AI016337, H97478, AI004460, AA523769, AA995123, W58446, AA906016,  
N67730, AA218964, W58481, AA745487, AI002469, N33241, R96357, AA946914, W37536,  
AA158441, N21366, N32946, AA665959, F22228, AA836484, AA291176, H97393,  
AA196183, R94183, AA761561, AA632152, C02223, T64875, H97408, AA872007, H18434,  
AA189107, AA399466, AA575883, R39560, T27010, D53740, T27506, AA192177, T17055,

- H24885, AA621511, AA746979, Z21262, R42720, T30509, AA293382, AA350071, T89408, T34307, N73829, T92004, N70721, AA092470, AA938979, AA847618, AA095836, AA055563, AA715804, H98021, T32576, N31316, AA486221, AA194566, H98034, R94184, AA308822, W00872, Z17346, AA331013, AA749059, AA411185, W90707, AA553396,
- 5 AA047652, AA886735, AA301502, AA772448, AA824475, AA411260, AA813387, AA675896, T50370, W95592, N30483, Z25226, AA729392, AA033548, AA431839, W58521, AA007137, AA301744, AA978233, W03576, AA462194, AA008245, AA260606, AA198212, AA189192, AA240441, AA414348, W98490, AA016494, AA691010, AA623846, AA511096, AA656757, AA675223, AA466884, AI050266, AA435090, AA435437, WI0945, AA266895,
- 10 AA267701, AA608040, AA608041, AA266882, AA407350, W66988, AA543129, AA216911, AA434838, AA166066, AA794417, W89434, AA139140, AA560598, AA008270, AA596527, W66681, AA222621, AA607770, AA499168, AA117196, AA497794, AA050116, AA863935, AA690541, AA117197, AA561346, AA267316, W57260, AA616897, AA407163, AA575633, AA407008, AA759821, W97241, AA688511, AA574848, AA797916, AA967240, AA117944,
- 15 AA759930, AA607312, AA591993, AA474199, AA655917, AA118144, W84301, AA560843, AA589023, W35888, W70725, C78518, AA409986, AA106783, AA271319, D76926, C80705, AA170349, AI020705, AA426846, AA272487, AA710366, AA563137, AA590504, AA517208, AA538443, W15034, AA596775, W11964, AA242468, AA124706, AA271429, AA438185, AA545226, W43967, AA959868, AI049037, C76466, AA617221, AA389144, AA799943,
- 20 AA875662, AA891138, AA891359, AA963788, AA606181, AA606211, AA605910, AA606151, AA566626, R62127, AA852037, AA899385, AA893752, AA945749, AA859407, AI008277, AA926018, AA900233, AI009672, W35650, W43098, U83076, R04551, AA850230, AA925882, AA735360, AA851992, T20410, T15008, C43025, W43821, AA264836, AA850384, AA996808, R90420, T67354, AA799495, D36988, C44938, C50073, M89321,
- 25 R62043.

## SEQ ID NO: 218

- 30 U33818, U75686, AF050157, AC004140, X65553, AF032896, X57483, AC004673, AF004282, M27072, Z81570, M97812, Y00345, Z48501, AF038613, Z82068, AA876341, AA745823, AA757071, AI016337, AA580267, H97478, AA523769, AI004460, AA995123, W58446, AA906016, N67730, AA218964, W58481, AA745487, N33241, AI002469, R96357, AA946914, AA158441, N32946, W37536, AA665959, F22228, AA836484, AA291176,
- 35 AA196183, H97393, AA632152, AA761561, R94183, N21366, H97408, AA872007, C02223, T64875, AA189107, AA399466, H18434, AA575883, T27010, R39560, AA192177, T17055, H24885, AA621511, AA746979, R42720, D53740, AA350071, T89408, N73829, T34307, Z21262, T27506, T92004, N70721, AA847618, T30509, AA055563, AA293382, AA092470, AA938979, AA715804, T32576, AA486221, AA194566, R94184, AA095836, H98021,
- 40 Z17346, N31316, H98034, AA729392, AA130979, D55392, AA533637, AA715721, AA720553, AA491878, AA417222, AA506606, N31457, AA664970, AA223578, AA598879, W60261, H41953, N87739, R81314, AA033548, AA431839, W58521, AA203481, AA007137, AA301744, AA978233, C06147, R02778, AA746819, AA462194, AA260606, AA008245, AA198212, AA189192, AA414348, AA240441, W98490, AA016494, AA691010, AA623846,
- 45 AA656757, AA511096, AA675223, AA466884, AA435437, AI050266, AA266895, AA435090, AA267701, WI0945, AA608041, AA608040, AA266882, AA407350, W66988, AA543129, AA166066, AA008270, AA759930, AA596527, W66681, AA222621, AA560598, AA499168, AA117196, AA117197, AA497794, AA655917, AA863935, AA690541, AA561346, AA267316, W57260, AA616897, AA050116, AA688511, AA575633, AA407008, AA118144,

- W97241, AA967240, AA591993, AA607770, AA407163, AA474199, AA117944, AA434838, AA797916, AA794417, AA759821, AA139140, AA574848, W89434, AA216911, AA607312, C80705, AA170349, AA710366, AA560843, W84301, D76926, AA106783, AA589023, AA426846, AI020705, AA272487, C78518, AA409986, W70725, AA545226, AA563137, 5 AA590504, AA538443, AA596775, AA271319, AA242468, AA517208, AA271429, AA438185, W11964, AA124706, W35888, AI049037, W43967, C76466, AA959868, AA409993, AA617221, AA895638, AA799943, AA875662, AA963788, AA891359, AA891138, AA566626, AA945749, AA926018, AA859407, AA900233, AA852037, AA899385, AA893752, AI008277, AA606211, 10 AA606181, R62127, AA605910, AA606151, AI009672, W43098, AA850230, AA925882, U83076, R90420, T20410, AA799495.

SEQ ID NO: 219

- 15 U33818, U75686, D12799, Y00345, Z48501, X65553, X57483, AF032896, M27072, U10455, L05109, M38019, U68093, AF001290, X75959, U68094, AL008725, U68096, U24123, AC000374, Z50110, AF043297, AC002426, AC002468, U61983, AE001162, X02868, L19418, AL021961, X97051, AC004784, M62322, U24491, AJ006152, X97249, AF010151, J04560, 20 X54547, U10438, M55163, AJ006156, X54815, AJ006158, AC004654, AC004068, AA486375, AA158440, AA194420, AA188891, AA375867, R17538, F00298, H18542, AA196312, T28812, R17340, AA196938, F00102, W37521, Z21267, H25084, AA453382, AA453284, AA220979, H08705, T77286, R17367, T27011, AA319539, AA318103, AA422010, AA486626, AA379415, AA171870, AA188750, AA361702, R96399, AA312133, T62784, 25 AA255906, R19420, AA247691, W74246, AA361898, AA285253, AA351480, AA401953, AA152064, AA361741, AA373063, AA361546, AI004148, AA384795, R87216, AA101951, T69963, AA377926, AA358393, N86589, AA248355, H65031, H22721, AA091008, AA382298, AA380413, T62932, W40155, H78922, AA318252, AA347167, AA379760, AA056400, N56760, R91800, C03993, H94770, H25628, AA385613, H94776, R52413, 30 H23386, R56744, H78328, H94769, AA314666, AA303852, AA376845, AA774116, W39453, D56258, AA366534, D82637, AA313472, AA354673, AA367226, R12837, AA368385, AA149671, AA354644, AA180522, AA114086, T19111, AA165091, T19451, AA517715, AA549198, W45901, AA530373, AA068153, W48104, AA794203, AA675536, AA681546, AA543470, AA920538, AA541855, AA261638, W35888, AA162612, C81574, W99071, 35 AA727586, AA413709, AA545226, AA727531, W35997, AI020619, AA467691, AA407351, AA545223, AA794553, AA589633, AA183483, AA080540, AA645633, AA543952, AA655813, D77409, AA547472, AA560746, AA756055, AA543742, AA855593, AA144201, AA041692, AA239102, AA059627, AA117203, AA684154, AA561318, AA549355, AA217996, AA067786, AA672755, AA674118, AA529650, AA098209, AA065421, 40 AA068210, W65980, AA109586, AA473398, AA571125, AA647192, AA399911, AA617584, AA572052, AA529434, AA473387, AA688594, AA110011, AA546821, AA051730, AA562058, AA108250, AA154026, W77696, AA537244, AA560874, AA145742, AA645194, AA895401, AA867607, AA638251, AA553063, C80232, W71834, W65821, AA041626, AA031045, AA231604, AA562224, AA795409, AA517821, AA921604, W62769, AA840242, 45 AA644770, AA717160, AI037666, AA591443, W75448, AA667343, AI028973, AI030229, AA941292, AA820598, AA951608, AA949560, AA942271, AA941470, AA978695, AA979103, AA978967, AA940632, AA948939, AA978577, AA950752, AA979102, Z71862, AA816582, AA804029, AA539099, AA390345, AA440542, AA441205, AA941013, AA202584, AA820079, AA802164, AA940867, AA439983, AA735831, AA439362,

AA263555, AA802472, AA441090, AA263809, AA263953, AA538584, AA539606,  
AA735861, AA201233, AA391644, AA539726, AA390979, AA695329, AA698775,  
AA567211, AA538639, AA441331, AA697265, AA438551, AA696576, AA696026,  
AA201345, AA698004, AA202460, AA439514, AA201654, AA567213, AA439587,  
5 AA803058, AA941996, AA801635, H35169, AA684843, D75214, C62333, D35431, C46263,  
D35533, C66673, C39459, C40859, D35888, D36845, C39840, C42713, C48422, D35317,  
C51205, C40386, D37554, H56873, D36624, C43542, AI007576, D36210, D36425, W59838,  
C47685, C31022, R90714, R90213, AA698275, AA698277, AI035122, C08701, D39435.

---

10

SEQ ID NO: 220

U41635, AB002806, AC000028, U09408, U48764, AL022121, AC004249, AF018172, L10038,  
AB005236, J05272, AC004257, AA247483, AA847587, AA301767, AA383537, AA326733,  
15 AA447675, T52904, AA311351, Z98470, AA021447, T52905, AA768056, T57573, AA376472,  
AA326234, AA447825, AA057822, AA300304, T72427, N25082, AA013336, N25068,  
T07270, AA130927, AA987429, M85690, Z78374, AA308389, W22396, AA847946,  
AI015097, AA524605, H43007, AA687762, AA866050, R43064, Z38317, AA584325,  
AA680035, AA481862, AA604446, R38085, AA916929, AA380906, AA865871, R52542,  
20 AA723065, AA372660, AI022349, W24213, AA766199, AA939140, AA757640, AA767766,  
AA427357, AA457735, R77360, H09218, AA314969, AA194706, AA349248, AA703109,  
AA181002, AA847638, AI042342, T98541, AA157549, AA294833, AA305025, AA346134,  
AA559108, H78224, AA877752, AA338059, N99459, AA167677, AA346227, AA915977,  
AA087921, W82707, AA259495, C87724, AA561718, W30641, AA790196, AA016731,  
25 AA015169, W83145, AA833185, AA671234, AT000280, AA539360, D46441, C07190,  
C48098, C45270, AA098778.

SEQ ID NO: 221

30

U41635, AB002806, AC000028, U09408, AC004249, AF018172, AL022121, AB005236,  
J05272, AC004257, U48764, AA247483, AA847587, AA383537, AA326733, AA447675,  
T52904, Z98470, T52905, AA768056, T57573, AA301767, AA376472, AA326234, AA447825,  
AA057822, AA300304, T72427, N25082, N25068, AA130927, AA987429, AA311351,  
35 Z78374, AA308389, W22396, AA847946, AI015097, AA524605, AA380906, AA766199,  
R52542, AA757640, AA457735, AA427357, AA723065, AA767766, AA939140, AA372660,  
W24213, AI022349, AA338059, T98541, AA305025, AA346227, AI042342, AA294833,  
AA703109, AA915977, H78224, N99459, H09218, AA157549, R77360, AA559108,  
AA877752, AA167677, AA349248, AA346134, AA181002, AA847638, AA194706,  
40 AA314969, AA259495, C87724, AA561718, AA790196, W83145, AA833185, AT000280,  
C07190, AA749935, AA539360, C48098, C45270, AA098778, D46441, C24808, AA735750,  
AA951847, AA965558, AA952847, D48752, AA538571, C09425, D49085, AI045521, H36968,  
AA756959, C73531, U74137.

45

SEQ ID NO: 222

AC000028, U41635, AB002806, AB008003, AB004637, AB008004, U91325, AC003675,  
Z77458, AC004520, X68143, U64609, AF009736, U90028, AA725086, AI022818, AA777556,



- W80633, AA777504, AA772348, AA488436, AA507884, AA909228, W87638, AA576869, AA858010, AA923143, W87639, AA565492, Z98471, AA836268, AA740512, AA600236, AA025446, AI038708, AA888095, AA884036, AA709078, AA780881, AA021448, W51907, AA857736, AA418104, AA405286, AA229590, W78780, AA928537, AA171903, W40580, 5 AA600281, AA693593, T86580, AA418006, AA961576, AA130872, AA255431, T48324, AA845232, AA229958, AA886449, AA229456, H68808, AA605105, AA524124, AA902821, AA478858, AA847279, AA923719, AA983917, AA291652, AA987429, R92757, AA491510, AA376598, T54460, AA970238, AA479956, AA559082, AA013242, F17590, AA879092, H68906, AA487566, T57526, AA037271, AA873358, C01029, AA376596, AA988066, 10 T86757, AA987454, T48323, AA229231, AA336140, AA376597, W35316, AA485436, W23716, AA364121, AA025464, D79251, R31165, AA196163, AA524605, T24754, AA701171, AA376594, AA229681, AA196291, AA912446, AA364585, AA314071, AA455742, AA353725, AI037001, AI036984, AA142403, AA242672, AA103784, AI006503, AA162689, AA260290, AA274880, AA562859, AA116500, AA509856, AA689953, 15 AA553076, AA267303, AA771090, AA395935, AA209939, AA764542, AA856290, AA189943, AA623771, AA209824, AA246017, AA289682, AA920074, AA200743, AA184793, AA546811, Z84196, AA955565, AA819004, AA997860, C26797, AA964402, AA735044, AA818212, AA818816, AA699213, D39769, D21937, D23574, AA676114, W35615, AI012085, AI043801, D39954, AA567379, AA661038, AA676019, AI010262, 20 AA651403, C23200, AI012034, AA736167, C27170, AA440511, T70632, C27682.

SEQ ID NO: 223

- 25 AB002806, U41635, AC000028, AB008678, X17698, U70439, Y07969, AL024454, Y07569, U12634, U34777, AF025654, AC004249, AC004318, AC004114, U48764, AB009023, L10038, AB012143, AB005236, AF018172, X68970, AB012142, AB009022, J03975, AC004257, Z49212, J04668, AB005234, J05272, U46025, AB009024, AC004120, AA247483, AA326733, AA847587, AA301767, AA383537, T52904, AA447675, AA311351, AA021447, AA447825, 30 AA300304, AA013336, T72427, T07270, AA130927, AA376472, M85690, Z98470, N25082, AA057822, Z78374, T52905, AA768056, AA481862, AA916929, AA584325, AA865871, AA866050, AA604446, H43007, Z38317, R38085, AA687762, AA680035, R43064, AA985188, AA171429, AA622348, AA158538, T61524, AA525505, AA652541, AA191710, AA566012, AA679719, AA165421, AA165584, AA244109, AA244110, AA056602, 35 AA465023, AA807725, AA156040, AA301726, AA179228, AA565645, T94834, AA669231, AA766199, R52542, T34213, T27501, AA757640, AA427357, AA457735, AA767766, AA723065, AA939140, W24213, AA305985, AI022349, AA338059, AA194706, T98541, T39129, AA346227, AA915977, N31076, AA703109, H09218, N85861, N99459, AA157549, T24682, AI022293, H78224, R77360, AA167677, AA349248, AA559108, AA181002, 40 AA346134, AA847638, AA294833, AA314969, AA087921, W82707, AA259495, AA561718, W30641, AA015169, AA016731, W59606, AA241136, AA671234, AI005955, AA833185, AA920585, AA517901, W36961, AA718256, C85551, AA000810, AA239590, AA052206, AA596717, AA048997, AA637394, AA041758, AA517295, AA171305, AA219992, W12888, AA833183, AA655890, AA066712, AA117176, AA474773, AA499828, AA435261, 45 AA726808, AA589213, AA955263, AA848496, AA897810, AA684640, AI008840, AA735790, AI012710, C90564, AA685125, C47184, C48098, C32154, C46092, AT000280, L46458, AA749935, AI046063, N65197, C45270, C09163, AA539360, AA098778, C07190, C47454, AA965558, T13875, T01634, AA392380, R29971, AA952847, D68714, AA538571, AI045521, C24808, C40596, C35231, C73531, D49085, W66334, U74137, C43076, D48752, AA735750,

AA951847, F14689, C29139, H74544, C09425, C24682, D67219, AA887359.

SEQ ID NO: 224

5 U41635, AC000028, AB002806, AB008003, AB004637, AB008004, AC003675, U90028,  
AC004520, AI022818, AA777556, AA725086, AA488436, AA772348, AA777504, W80633,  
AA909228, AA507884, AA858010, AA923143, AA576869, W87638, W87639, AA565492,  
Z98471, AA740512, AA884036, AA888095, W51907, AA709078, AA600236, AI038708,  
10 AA021448, AA857736, AA418104, AA780881, AA025446, W40580, AA928537, AA836268,  
AA171903, AA693593, AA600281, AA229590, AA418006, AA961576, AA405286,  
AA255431, T48324, AA130872, AA229958, AA845232, AA886449, AA229456, AA524124,  
AA605105, AA478858, AA847279, W78780, AA902821, AA923719, AA983917, AA291652,  
AA491510, T54460, T86580, AA970238, R92757, AA987429, AA376598, AA559082,  
15 AA479956, AA013242, H68906, AA879092, AA487566, AA873358, T57526, F17590,  
AA037271, C01029, AA376596, AA987454, AA988066, T86757, AA229231, AA376597,  
W23716, AA485436, AA364121, D79251, AA196163, H68808, AA701171, T24754,  
AA376594, AA912446, T48323, AA455742, AA336140, AA229681, W35316, R31165,  
AA025464, AA576355, AA853684, AA364585, AA524605, AA196291, AI037001, AI036984,  
20 AA162689, AA116500, AA562859, AA260290, AA274880, AA509856, AA184793,  
AA267303, AA771090, AA246017, AA623771, AA546811, AA189943, AA395935, Z84196,  
AA955565, AA819004, AA735044, AA818212, AA818816, C26797, D21937, W35615,  
D39954, AA661038, D23574, D39769, AI010262, C11235, C11348, AI012034, C27682,  
C27170, C23200.

25

SEQ ID NO: 225

X78933, X07290, X52356, L32164, M99593, Y00850, X12592, M36514, M15709, AC005261,  
30 AC004696, AC003002, AF033199, U81557, D89928, X78925, AL021918, AC004017, U09368,  
U66561, X64413, X52533, X89264, M92443, AC002519, L77247, AB010372, S54641,  
AB007872, X81804, M27877, AL022393, D10627, X16281, D31763, U09367, U57796,  
U28687, X70394, U37263, U37251, X68011, D10632, AF020591, U88080, M27878, L32163,  
U48721, M88359, X79828, AF024709, X69115, AF011573, Y10929, X17617, U56862,  
35 D70831, M36146, AC003682, X52332, U09852, X78926, AB010373, AL021997, X78931,  
L11672, L36316, X74855, D45210, X78924, AC003973, X51760, X68684, X78932,  
AC003006, M36516, L16904, L20450, D10628, S52507, L28802, X69116, U35376, AF027140,  
M55422, M96548, X73897, Z95704, AF027147, AC004004, Z96138, X73895, L35269,  
X07289, U69133, AF003540, U78722, X84801, L75847, L15309, AA491488, AA115318,  
40 F07386, AA481221, H17858, F05579, AA599717, R88880, R89645, F05578, AA773248,  
AA295275, AA730306, W68223, AA860989, AA252461, AA418246, AA083811, AI016606,  
AA476564, H05857, R21372, AA443369, N80080, R08512, H80390, AA088626, W07223,  
AA130554, AA134518, R97364, AA159900, AA626677, AA984704, M78146, H19309,  
R95836, T07511, AA665316, AA130717, T07512, N84888, W28368, T56944, AA471338,  
45 AA026736, N47183, AA081943, AA354359, AA165008, R70961, AA455712, AA903551,  
AA324611, N49093, AA330257, AA278662, AA384152, AF026101, AA632636, AA283909,  
AA427841, H17015, N29327, AA210784, T05813, AA457311, N57019, AA682749, T64207,  
AA495843, AA974380, H05892, AA161185, AA334780, AA632298, N29001, AA234320,  
N98899, AA127003, AA214032, W26008, AA046794, AA211186, AA076467, AA176763,

T47250, AA083845, AA635575, AA635567, AA716653, H81495, AA166907, M77976,  
F07748, AA018330, AA379532, AA456534, W31899, H38307, AA615956, AI043118,  
AA240059, AA435439, AA612258, AA244987, AI047413, AI035237, AI042916, AA117053,  
AA189434, AA155283, AA562594, AA797641, AI036166, AA097760, AA044497, AA476109,  
5 AA896035, W14162, AA799068, W75531, AA239494, AA175620, AA562383, AA409820,  
AA140301, AA798457, AA799050, AA616580, AA867000, AA529691, AA666855,  
AA098301, AA097579, AA726604, AA839547, AA154311, AA499468, AA271667,  
AA451420, AA172466, AA117284, AA624111, AA123822, AA981211, AA102943,  
AA119538, AA172972, AA981587, AA474782, AA666789, W91712, AA104086, AA242194,  
10 AA427186, AA073347, AA980878, AA414390, AA414083, AA980960, AA122779,  
AA611311, AA110661, AA738624, AA184177, AA616442, AA764391, AA681464,  
AA079904, AA155148, AA036225, AA537315, AA444998, AA123106, AA716903,  
AA930937, AA543731, AA178652, AA285425, AA624117, AA177740, AA896323,  
AA575639, AI046551, AA920944, AA119762, L26825, AA522401, AA792248, AA667108,  
15 AA606643, AA068528, AA087480, AA546639, AA797318, X61884, AA536874, AA999112,  
H34344, C06870, C06945, H31120, C39828, C83273, AA848430, AA891600, AI030120,  
C82417, AA957915, H34728, AA957859, AA441547, AA965203, AA892221, AA893091,  
AA550029, AA570906, U19691, AA686274, AA892391, AA497308, H31100, AA605784,  
AA542644, C66726, AI007760, AI043689, AA440293.

20

SEQ ID NO: 226

X79131, AE000611, X80760, Z68144, AC005212, AA459031, AA641741, AA039315,  
25 AA249143, W88763, AA906626, AA907163, AA486150, AA627144, W33121, T99589,  
AA010912, T99582, AA608979, AA831394, AA988670, AA810777, N32049, N23351,  
AA011303, AA387753, AA259894, AA230751, AA795844, AA611861, AA175283,  
AA170563, AA537808, AA624139, AI026540, AI007406, AA842397, AA996566, C84712,  
AI026541, AA750628, AA549974, AA956255, T37093, AA998117, AA979129, AA952041,  
30 AI001407, AA263839, AA946466, AA952243, N38666, T03963, Z25965, AA818739,  
AA739870, AA689213, H76269, AA701709, D32381, AA042638, AI013505, C21985,  
AA567067, T04418.

35 SEQ ID NO: 227

U61976, U87145, AD000091, AA761721, AA766404, AI026897, AA810879, AA731675,  
AA490917, AA398748, AA761478, H66030, R91436, AA724571, H71908, H71907, R82263,  
H66075, H47305, R28259, AA862220, AA393340, N57120, H80421, AA078203, AA234560,  
40 W01054, AA907169, N76229, R68882, AA282007, W54620, W13987, AA990152, AI047764,  
AA968343, AA109154, AA273420, AA841045, H77125, N65155, T88352, R89943, T42196,  
AA818889, H75996, T46234, AA391396, T22676, AA605413, T75727, R90093, AA713001,  
T21829, T88293, AA956917, H37309, AI012358, T44139, AA712971, W43125, N38623,  
T76898, Z72419, AA394336, T41804, N37444, C66953, C70896, H76091, T45022, AA998951,  
45 N65777, C63712, C13094, N97055, N38282, AA067529, T20629, AA695398, C90104,  
H76347, T88628, T46514, AA439518, R90522, N65609, N65553, R04449, T04713, T44937,  
C69200, T44234, N37443, R29927, T76221.

SEQ ID NO: 228

U72149, Z49308, AP000002, M31431, Y10854, Z79429, D90223, D12686, AF012088, Z48244,  
AC000097, AB005297, AB009484, U39696, U01694, W73345, AA884998, W32183,  
5 AA211437, W73514, H87789, AA910426, D81990, AA463817, AI025900, AA074995,  
N63023, W01775, N79274, W84869, T77957, R25694, T85644, AA150473, T74453,  
AA044942, M62195, H10187, Z25139, R12167, F05247, AA690101, AA726818, AA184412,  
AA681116, AA867335, AA432923, D39338, T37604, H35717, AA712694, D76146,  
AA803322, AA849833, Z84046, C88431.

10

SEQ ID NO: 229

U50871, Z68873, U96409, AC002123, Z97198, AF064862, Z49862, AC004006, Z85997,  
15 AL008713, AF064865, Z85998, AL020991, Z83821, Z75741, AC004014, Z73986, Z82975,  
AF020803, AC004027, Z93018, AJ229041, AC004535, AF015720, AC003692, Z81365,  
Z70225, Z68871, AC004459, AC002381, Z70758, AC000389, Z83850, AC005201, AC002086,  
M68841, AF068624, AF027390, Z76735, AC002067, Z92547, Z94055, AC002065, Z71182,  
Z84814, Z97181, AC004081, Z84720, AC003086, AC004711, U63313, AC003013, Z82203,  
20 U82828, AL022069, AL008633, AC000112, Z80362, AC005248, AC004035, AC002367,  
Z82211, U95737, AC000127, AC004097, AC003083, AP000016, AC002458, AC004746,  
AC002981, Z94721, U91324, AC003666, AC002056, U59962, AC002386, U96629, AC002456,  
AC003977, Z80107, AC004744, Z81009, Z79699, Z92543, AC002122, AC003051, Z82196,  
Z83313, AF002994, AC004467, AC002106, U93573, AC002461, AC002366, AC004140,  
25 Z82216, Z84816, AC002430, Z82253, M69297, AA148366, AA564135, AA825623,  
AA481622, AA564249, AA558463, AA975182, AA622590, AA167264, AA622951,  
AA203220, AA558786, AA610250, AA085706, AA211212, AA342132, AA760657,  
AA808692, AA776667, AA736469, AA503117, AA584730, AA179264, AA172331, D57327,  
H03599, AA179891, AA714581, AA501789, R57964, R14820, AA432115, T07300,  
30 AA131481, T07174, AA446799, F07093, AA179658, AI017582, U81226, AA553460,  
AA551506, AA349831, AA551156, T60595, N44646, AA483270, AA742857, AA768268,  
F09295, AA654792, AA381013, AA550746, AA719829, AA714455, AA632675, AA252301,  
AA704567, AA551038, AA493615, AA372560, AA493771, AA610148, AA425144,  
AA375960, AA564149, AA713837, AA501474, R11143, AA505003, AA505014, AA577804,  
35 AA484141, T51061, AA501642, H82631, N20799, R14500, AA993034, AA226681, T07829,  
AA811843, AA879004, R48661, N23244, AI024916, T06551, AI002981, AA552255,  
AA808887, N80414, AA559101, AA148747, AA975124, AA905240, AA167491, AA598888,  
AA331911, AA810853, T49629, C77906, AA038811, C87904, AA562235, AA241049,  
AA120178, C88029, AA153558, C78452, AI048791, AA184976, AA208915, AA930041,  
40 C86095, AA068179, AA386476, AA107124, C91585, C08926, C47186, Z97827, H31388,  
F13837, C43599, C40509, C39935, D27031, T12954, C06676, AA186207, T03971, AA875516.

SEQ ID NO: 230

45

U41740, U31906, X82834, AF051357, M16515, AE000665, AE001146, U26270, Z84719,

S82456, Z70287, AL022242, Z98552, Z49219, M23122, U20618, Z68908, AC005142, Z84483, Z77752, AC002088, AA354916, AA132579, AA176462, T10747, AA814649, AA828786, T56781, H59845, AA487386, AA572915, AA663121, A1039814, T99024, H19980, AA449129, AI025081, H22694, AA609180, AA210834, H45056, AA836120, AA777526, R89114, H96569, 5 AA380500, C77480, AA647230, AA590640, C78605, AA612362, AA538073, AA144000, AA177258, AA512069, AA982370, AA017993, AA960228, AA177288, AA153926, W63975, W82286, AA799039, AA276817, AA389921, AA550313, AA825078, AI014236, AA566591, AA696643, AA924237, D47512, AA924658, C71745, AA547772, C61373, AA404942, N97854, AA824886, AA946463, C32229, C24783, C33070, AA787333, C26667, AA550200, 10 AF064466, AA041141, C26717, AA892224, AI043458, C28792, H07456, C92480, AA605507, C33265, D37649, AA395246, C61288, AA784068, AA042290, F13833, AA956701, AA893374, AA430867.

15 SEQ ID NO: 231  
X82834, U41740, U31906, AF051357, AL021918, L42230, X92669, Z35595, Z77655, M31076, Z68748, U61835, X55713, U63323, Z21677, U76113, U79415, U95052, U39854, U76111, Z98941, L40157, U32274, D49525, X78998, U76112, U73824, X89713, N20922, AA393058, AA936202, N33249, AA779873, AA460981, H99182, H95236, R64018, AA865345, T91725, 20 AA626910, R81347, AA412101, AA872172, N43733, R32081, R63927, R80281, R21240, R80183, D20844, R21241, R81603, R22854, R22853, R32028, H02205, M85542, C16145, C18105, C16050, H95283, N41964, AA889169, N33068, R96076, AA707136, AA832159, AA948070, W57757, AA699720, H82741, R49475, N21348, W94140, AA890361, H86539, AI027352, N24075, AA744829, AI025218, W32532, N48597, AA602610, N67665, N37033, 25 N26036, AA704780, AA872211, AA481759, AA053712, AI042486, N98230, H38681, N25537, AA492013, AA564876, AA665638, AA887102, T33836, AA017487, AA164767, C75216, AA653661, AA857021, R24534, H99749, N35081, W60985, AA586503, AA598522, AA600046, AA629522, AA773262, T56913, T81283, C05590, AA150706, AA329155, AA483385, AA644112, AA661586, T33531, AA774275, AA359475, AI017753, AA063117, 30 AA960654, AA177806, AA734454, AA109493, AA407935, AA529400, AA667098, C79193, AA145323, AA620126, AA981910, AA200736, AA145143, AA543391, AA123214, AA117863, AA286273, AA623034, AA413653, AA838965, AA407743, AA221695, AA690053, C88301, AA623056, AA684519, AA617129, AA450604, AA145084, AA467457, AA146155, AA416288, AA529856, AA259733, W36213, AA590407, AA590191, AA473132, 35 AA499314, AA529605, W09721, AA408503, AA434785, AA882043, C87444, AA118649, AA997635, AI045690, AA998942, D70945, AI009435, AI009369, AA849692, AA849333, AA945711, AA955399, AA899132, AA859186, AA660479, AA660469, C56840, AA891066, D75119, AI029034, C67494, R86825, T76252, AA585797, D64807, AA801762, AA736067, AA897947, C26259, AA803788, D67739, AA696790, AA695900, C83895, AA816766.

40

SEQ ID NO: 232

45 X82834, U31906, U41740, AF051357, AL021918, Z93374, Z68748, U61835, M31076, X92669, Z35595, Z77655, Z21677, U79415, Z00044, U73824, X52874, X90650, X07675, U76112, U32274, X89713, U76113, X15901, U95052, X68322, U63323, L40157, U76111,

- X78998, D49525, Z98941, X55713, U39854, N20922, AA393058, AA936202, N33249, AA779873, AA460981, H99182, H95236, AA865345, T91725, R64018, AA626910, R81347, AA412101, AA872172, N43733, R80281, R32081, R63927, R21240, R80183, D20844, R21241, R81603, R22854, R32028, H02205, R22853, M85542, C16145, C18105, C16050, H95283, N41964, AA889169, AA948070, R96076, N48597, AA707136, N33068, W57757, AA699720, AA832159, N21348, W94140, AA872211, AA890361, AA744829, W32532, N24075, H86539, AI025218, H38681, H82741, AI027352, N67665, N37033, N26036, AI042486, R49475, AA704780, N98230, AA481759, AA053712, AA602610, AI022119, T33531, T33836, R24534, H99749, AA329155, AA492013, AA564876, AA773262, N35081, AA017487, AA598522, AA600046, AA644112, AA653661, AA661586, AA774275, AA857021, N67362, C05590, AA586503, AA150706, AA359475, T81283, C75216, AA063117, AA483385, N25430, AA164767, N91156, AA156272, AI017753, T87844, AA960654, AA177806, AA734454, AA109493, AA407743, AA838965, AA221695, AA286273, AA408503, AA200736, AA499314, AA529400, AA620126, AA623056, AA416288, AA543391, C79193, AA407935, AA259733, AA117863, AA981910, C88301, AA590191, AA450604, AA623034, AA684519, AA145323, AA145084, AA667098, AA617129, AA146155, AA123214, AA467457, AA529856, W36213, AA690053, AA590407, AA473132, AA145143, AA529605, AA413653, AA413915, AA434785, C87444, AA118649, AI045690, AA997635, AA998942, D70945, AA849692, AA849333, AA945711, AI009435, AA955399, AA899132, AI009369, AI029034, AA859186, C56840, D75119, AA891066, D46956, N61767, C67494, AA787174, D64807, AA585797, R86825, T76252, AA736067, AA801762, AA897947, AA803788, D67739, AA786644, C83895, AA695900, AA816766, AA696790, C26259.
- 25  
SEQ ID NO: 233
- U41740, X82834, U31906, AF051357, Z73506, U78774, AC002527, X96770, AC004152, AL021327, AE000183, Z68284, U52112, D90718, D90719, Z70049, Z68193, U63721, AC004084, AC004769, U90094, AC001226, AC002303, Z97988, U88311, Z48618, U91321, AC000373, Z68273, U82672, Z72001, AL023802, AC004000, AC004653, AC004149, AC005266, AC000095, U63313, Z97055, AC004792, AC002350, Z94056, Z81136, U73167, Z80115, AL022396, AC004778, Z69792, U58675, K00060, Z72685, X58824, AC004598, AF047825, U81833, U78027, AD000092, AP000043, Y12773, AC001643, AL031005, AC002302, AF024533, AC002522, X94226, U62293, U51587, AC004513, AC002456, AC004678, AC003692, AC004216, AC003104, U80764, AF001552, Z72684, U21051, AC004525, AP000015, AC003969, AC002319, AC004258, AC002365, AA652247, N24465, N27783, N41964, AA357510, AA887286, AA642632, R80281, R81603, H95283, AA533718, AA244445, AA460200, R44616, AA644545, R67777, AA035603, AA449740, AA424029, AA486555, W93200, R42597, AA890452, R67756, T79593, AA290873, AA653164, AA192147, AA847177, AA634264, AA809963, AA461084, AA565270, AA834582, AA507180, T69524, AA985090, AI003151, H69626, AA772402, AA255722, AA605121, AA987194, AI039085, AA703051, AA953929, AA630127, AA601180, AA765122, AA713761, AA550845, F04900, T62484, AI039232, AA338318, AA218835, C15778, AA165065, AA227713, AA513780, R95060, R83402, H66328, D82325, N59570, D83918, C15060, AA427968, AA604201, H47228, H47539, H69236, AA224938, AA443491, AA502237,

AA640686, AA669548, AI040487, T27166, T99089, R08004, AA229986, AA230159,  
AA287495, AA362707, AA177154, M78092, T82953, H93283, AA661761, N22943,  
AA476395, AA552989, W45688, AA583129, AA622179, AA825906, AA197476, AA461759,  
AA009086, AA276443, AA146097, W09721, AA152629, AA153732, AI048715, AA109493,  
5 C85377, AA469653, AA038354, AA892746, C82723, C83579.

---

SEQ ID NO: 234

10 X82834, U41740, U31906, AF051357, AL021918, Z93374, L42230, Z68748, U61835, Z77655,  
X92669, M31076, U76111, X15901, L40157, X07675, D49525, X78998, U95052, U76112,  
AF051547, U39854, U63323, Z98941, X89713, U79415, U76113, Z00044, X90650, Z21677,  
U73824, X68322, U32274, X55713, AA393058, N20922, AA936202, N33249, AA779873,  
AA460981, H99182, R64018, H95236, T91725, AA865345, R81347, AA626910, AA412101,  
15 R80281, R32081, AA872172, N43733, R21240, R81603, R63927, R80183, R21241, H02205,  
R22853, D20844, R22854, R32028, C16145, M85542, H95283, N41964, C18105, C16050,  
N24465, R49475, AA872211, H86539, AA602610, H38681, AA744829, N24075, AI025218,  
AA704780, AI042486, N37033, N67665, N98230, W57757, R96076, AA889169, N33068,  
N48597, AI027352, AA707136, AA948070, AA699720, W32532, AA053712, AA481759,  
20 H82741, AA890361, AA832159, N21348, W94140, N26036, N64169, N69808, AA152414,  
AA150808, AA826634, AA608693, AA664381, AA729796, M85323, W04704, W45455,  
AA132690, AA747487, AA873403, AI003070, N34491, N62152, N62798, N91265, AA173949,  
AA232135, AA489502, AA530875, AA746888, C75065, AA889249, T34029, AA541351,  
F07116, AA604724, AA177806, AA960654, AA734454, AA109493, W09721, W36213,  
25 AA408503, AA450604, AA145143, AA145084, AA146155, AA467457, AA667098,  
AA690053, AA529400, AA473132, AA123214, AA590191, AA529605, AA413653,  
AA617129, AA529856, AA259733, AA543391, AA145323, AA117863, AA981910, C79193,  
AA499314, AA407935, AA200736, AA590407, AA407743, AA286273, AA838965, C88301,  
AA623056, AA620126, AA416288, AA221695, AA684519, AA623034, AA434785,  
30 AA882043, AA118649, C87444, AI045690, AA997635, AA998942, D70945, AA945711,  
AA849333, AA955399, AI009435, AI009369, AA899132, AA849692, AA891066, AI029034,  
D75119, C67494, AA859186, C56840, N97217, AA801762, AA803788, AA897947, D67739,  
AA695900, AA471664, AA816766, N61767, AA696790, AA786644, C26259, AA736067,  
AA787174, T76252, D64807, AA585797, R86825.

35

SEQ ID NO: 235

U41740, X82834, U31906, Z75536, AC004029, D10543, J05448, Z80107, AJ003067, X07052,  
40 S37449, AJ224144, AJ224143, D10457, AL008735, X07051, Z81001, Z36989, AA399685,  
N47087, W60925, AA029887, AA149524, AA937362, N78320, AA836050, N62088, C17952,  
AA910195, AA055214, AA826888, W07158, AA157092, AA987986, AA594364, AA664448,  
AA053558, W24009, R52958, F11272, AA781110, Z45084, AA827538, T80377, T08454,  
R15196, AA961173, R13116, T33921,  
45 AA144704, AA673452, AA118181, AA423734, W66923, AA003241, C33050, C58495,  
AA118229, AA859504, AA392158, AI050191, C50519, AA952594, T04424, C53405,

AA887351, AA232022, C46064, N97682, C67730.

SEQ ID NO: 236

5

U31906, U41740, X82834, Z98755, S43653, AC002123, AC000057, AC004533, X17354,  
AC000022, Z78603, Z97338, AC004468, AL022727, AC002064, L03534, U73639, AA610820,  
AA508786, AA132892, AA176731, AA481230, T28759, AA220245, W63554, T47910,  
R59658, W40366, T64813, AA382641, D81632, AA319696, AA282035, AA676689, Z45290,  
10 AA009607, H09636, N76049, AA869262, AA521593, AA542298, AA823606, AA275141,  
AA242651, AA796842, AA929191, AA693189, AA681525, AA879926, AA519018,  
AA413292, AA545157, AA873945, AA117839, AA734976, AA546409, AA182272,  
AA174520, AA794821, AA177573, AA870598, AA536935, AA517121, AA414354,  
AA409394, AA032544, AI044357, T43218, T37212, AA495416, C22529, C48660, C46705,  
15 AA660392, F14001, AA898596, AA658639, AA901143, C32906, C25682, C58279, Z29892,  
AA167882, H77124, AA394618, AA246553.

SEQ ID NO: 237

20

U31906, X82834, U41740, AF051357, AL021918, Z35595, Z77655, U61835, X92669, U39854,  
U76113, U63323, X89713, Y08256, D49525, X55713, U76111, U79415, U95052, X78998,  
Z98941, U32274, U73824, Z21677, AJ000083, U76112, L40157, N20922, AA393058,  
AA936202, N33249, AA779873, AA460981, H99182, H95236, AA865345, T91725,  
25 AA626910, R81347, R64018, AA412101, AA872172, N43733, R63927, R80183, D20844,  
R21241, R21240, R22854, R32028, R32081, M85542, R22853, C16145, C18105, R80281,  
C16050, R81603, H02205, N41964, H95283, N33068, AA699720, N48597, AA707136,  
H82741, N21348, AA832159, AA890361, R49475, AA872211, H86539, AA602610, AI027352,  
AA481759, AI025218, N98230, N37033, N67665, W32532, W94140, AA744829, AA053712,  
30 AA704780, W57757, AI042486, H38681, AA889169, N26036, R96076, AA948070, N24075,  
AA644112, AA661586, AA774275, T87844, N32578, AA017487, AA063117, AA483385,  
AA857021, N25430, N91156, AA397651, F22408, AA601531, AA653118, AA730562,  
AI003166, AI050953, T31459, R15138, AA156272, N32816, AA128834, AA152414,  
AA653661, AA150808, AA213723, AA489469, N67362, AA723193, T04967, C06330,  
35 AA680267, AA826634, F18699, AA960654, AA177806, AA734454, AA109493, AA590191,  
AA684519, C79193, AA416288, AA617129, AA623034, AA286273, AA529856, AA145323,  
AA407935, AA407743, AA543391, AA123214, C88301, AA117863, AA590407, AA221695,  
AA620126, AA667098, AA690053, AA529605, AA413653, AA529400, AA259733,  
AA200736, AA145143, AA145084, AA981910, AA499314, AA408503, AA623056,  
40 AA146155, AA467457, AA473132, AA118649, AA434785, AA882043, AI037745, AI006368,  
AA178352, AA221215, AA867811, AA960652, AA409857, AA797975, AA547258,  
AA197890, AA574968, C78959, AA997635, AI045690, AA998942, D70945, AA899132,  
AA955399, AI009369, AI009435, AA849692, AA849333, AA945711, C67494, AA891066,  
AI029034, AA859186, C56840, D75119, AA816766, AA695900, AA801762, C83895, D64807,  
45 AA696790, AA585797, AA736067, AA850362, AA803788, C26259, AA850361, AJ225449,  
D67739, AA897947.



SEQ ID NO: 238

X82834, U31906, U41740, AF051357, AL021918, X92669, Z35595, M31076, U61835,  
5 Z77655, X89713, U61261, Z68748, U73824, Y08256, U76112, X52874, U79415, L40157,  
~~U39854, X78998, U76113, D49525, U52274, X55713, U63323, Z21677, U95052,~~  
U76111AA936202, N20922, AA779873, N33249, AA393058, AA460981, H99182, H95236,  
AA865345, T91725, AA626910, R81347, AA412101, AA872172, N43733, R64018, R63927,  
R80183, D20844, R21241, R22854, R32028, M85542, C16145, R21240, C18105, C16050,  
10 R22853, R32081, R80281, R81603, H02205, N41964, H95283, AA948070, N48597, N33068,  
AA832159, H82741, AA872211, R49475, N21348, W94140, AA602610, H86539, H38681,  
W32532, AI025218, N24075, AA053712, N37033, N67665, AA704780, AA890361, AI027352,  
AI042486, N98230, W57757, AA889169, AA744829, R96076, AA707136, N26036,  
AA699720, AA481759, R15138, N25430, N32578, N91156, AA128834, AA156272,  
15 AA601531, AA653118, T04967, T87844, N32816, F18699, N64169, N69808, AA150808,  
F22408, AA489469, AA723193, AA729796, W45455, AA730562, N91265, C06330,  
AA213723, AI050953, AA397651, AA541351, C75065, AA152414, AA680267, AA747487,  
AA826634, AA889249, AA873403, AA960654, AA177806, AA734454, AA109493,  
AA408503, AA407743, C79193, AA467457, AA529400, AA146155, AA416288, AA259733,  
20 AA145323, AA684519, AA145143, AA221695, AA499314, AA690053, AA407935,  
AA413653, AA617129, AA145084, C88301, AA200736, AA667098, AA529856, AA529605,  
AA451328, AA123214, AA981910, AA620126, AA623056, AA623034, AA590191,  
AA543391, AA473132, AA117863, AA286273, AA590407, AA413915, AA118649,  
AA434785, C87444, AA178352, AA960652, AA797975, AA146410, AA146428, AA197890,  
25 AA867811, AA547258, AA574968, C78959, AA221215, AI037745, W09721, AI006368,  
AI045690, AA997635, AA998942, D70945, AA955399, AA899132, AA849692, AI009369,  
AA849333, AA945711, AI009435, AA859186, AI029034, AA891066, C67494, C56840,  
AA695900, AA696790, C83895, AA585797, AA803788, AA736067, C26259, AA897947,  
AA801762, AA816766.  
30

SEQ ID NO: 239

X82834, U41740, U31906, AF051357, AL021918, X96770, AC002527, Z93374, Z73506,  
35 U78774, D90718, AL021327, AC004152, Z68748, U61835, L42230, M31076, AE000183,  
Z77655, X92669, Z35595, U52112, Z68284, D90719, Z99129, AC004792, X52874, Z81136,  
Z94056, Z21677, U63313, AP000043, U52951, AC004084, AC004216, AC003969, U76113,  
AL031005, U51587, X94226, AC002302, U76112, U95052, X95653, X90650, Z68273,  
AC003104, Z00044, Y08256, U63323, AC000373, U21051, AC003692, U76111, Z48618,  
40 AC004525, U39854, AC005266, Y12773, AC003048, U81833, AC000095, Z70049, AF047825,  
X78998, U90094, D49525, K00060, X58824, AC004598, U73167, U78027, AC004769,  
L40157, AC001643, U79415, Z72685, U91321, U73824, X07675, N20922, AA393058,  
AA652247, AA936202, N24465, N33249, AA779873, AA460981, H99182, N27783, H95236,  
R64018, AA865345, T91725, N41964, AA626910, R81347, AA412101, AA872172, R80281,  
45 R32081, N43733, R63927, R81603, R21240, R80183, D20844, R21241, H02205, R22854,  
R32028, R22853, M85542, C16145, C18105, C16050, H95283, AA357510, AA887286,

AA642632, R49475, R96076, H82741, AA890361, N21348, W94140, AA872211, AA460200, AI042486, N33068, AA889169, AI025218, H38681, AA744829, N67665, W57757, AA533718, AA481759, W32532, AA832159, H86539, AA602610, AA699720, AI027352, N37033, AA704780, N24075, N48597, AA707136, AA948070, N98230, N26036, AA053712,  
5 AA244445, AA550845, AA765122, AI017753, H99749, AA152414, AA190580, AA601531, AA715761, AI005166, AI050955, T35551, F18699, N25430, N25557, N91156, AA653661, AA632608, T62484, AA644112, AA083657, AA665638, AA987194, AA156272, AA329155, C75216, AA197476, AA461759, AA276443, AA960654, AA177806, AA009086, W09721, AA146097, AA152629, AA734454, AI048715, AA153732, AA109493, C85377, AA469653,  
10 C79193, AA467457, AA692865, AA432701, AA620126, AA146155, AA408503, AA200736, AA145084, AA981910, AA529856, AA221695, AA690053, W36213, AA259733, AA450604, AA617129, AA543391, AA667098, AA623034, AA110451, AA145143, AA623056, AA145323, AA413653, AA529400, AA499314, AA684519, AA123214, AA117863, AA838965, AA473132, AA529605, AA407935, AA286273, AA590191, C88301, AA416288,  
15 AA407743, AA590407, AA882043, AA038354, AA118649, C87444, AA434785, AA997635, AI045690, AA998942, D70945, AA849692, AA955399, AA849333, AI009369, AI009435, AA964767, AA945711, AA899132, AA891066, D46956, AA892746, C56840, C67494, AA859186, C82723, C83579, AI029034, N61767, D75119.

20

SEQ ID NO: 240

AC003974, AC004681, U49436, U22383, AC004044, Z75711, Z83105, Z92847, J05258, M18818, AC004784, AF003137, J03998, Z81037, X62534, AE000790, X94183, U40837,  
25 M83665, Z75530, X96770, Z97338, D86405, Z75190, X15965, Z78012, AF013293, AL008709, AL010247, M29366, Z17240, U47009, D87445, AC004679, AC004610, M34309, Z73514, U22451, L10986, Z70307, D50678, AC004641, AA488937, H91281, H13953, AA488860, U66680, T84930, AA348546, AI033691, W20125, AA766268, AA676506, AA455260, AA669443, AI016748, AA514527, AA594506, AA927484, AA465641, AA280785, AA112679,  
30 AA534892, AA864182, C02000, U66672, T52063, W72084, AI022067, W60824, AA355440, N85861, H14421, D54216, AA580516, N85718, AA453572, AA936958, AA115366, AA583543, AA857352, AI025354, AA296993, Z39747, Z42251, AA469426, AI049628, AA564289, W88652, AA541325, AA577099, AA173182, H44173, AA730547, AA938221, W35220, AI027945, R66803, N52377, AA447940, AA115143, AA989249, AA384314,  
35 H40132, AA974398, N24259, AA730906, AI027336, AA978016, AA555064, AA581982, AA573808, AA730329, AA829123, AI026739, AA226708, AA470940, AA181983, AA165148, AI031708, AA868807, AA913828, H41695, AI017209, AA243337, AA664947, AA527284, W07111, AA446617, AA707299, AA641308, AA626200, AA969113, AA977560, AA444646, AA759637, AA414743, AA475628, AA921663, AA794966, AA547558, AA913969,  
40 AA197970, W14297, W97059, AA674333, T42196, T88646, N65155, R89943, T88321, T76015, H77125, H76836, T45767, D71919, AT000266, Z30469, AA280453, Z26570, C40572, T22504, AA566286, D74603, R95510, AA605935, D48803, AA785360, AA167895, T42810, AA566644, C55866, Z47407, H33666, Z34086, AA739922, T37694, R62003, AA879381, C90299, AI028921, R30419, T42287, H76786, W43682, D46739, AA549907, AA555403,  
45 C43269, T04097, C47161, D67769, AA712800, D36501, D72348, Z29196, D43523, D42364, Z33946, AA898732, T14148, N98073, D72527, Z35049, AA167896, AI011733, C34075,

AI044036, AA532328, T42192, D73146, C28198, D66467, W05891, T38712, T22899,  
AA141398, T22427, T88557.

5 SEQ ID NO: 241

---

U43400, AF037218, AC000123, Z70224, Z99281, AC000127, Z74739, D14635, Z80107,  
U13614, U30248, X00417, AC004629, AF039037, Z35719, AL022148, U40160, Y12024,  
Z71265, U49940, AP000013, N22346, C16161, AA614449, AA825833, R34425, AJ003377,  
10 AA485723, AA811296, H22076, T10296, F01547, T15374, H28578, R40139, AA258311,  
AA169849, R53061, AA400820, H18505, AA417900, R66443, H07888, H08856, AA826266,  
H49161, AA024588, AA609086, T40888, AA134908, AA805008, AA878910, W00532,  
AA255802, AA576716, AA411991, AA741334, AA758279, AA896325, AA982953,  
AA109004, AA030787, AA208502, L26671, AA795994, AA061258, AA137576, AA174980,  
15 AA797841, AA684295, AA600584, AA142502, AA726442, AA919576, AA560121, AI007250,  
AA030519, AA855488, AA718092, AA414300, AA871414, W82197, AA560836, AA050501,  
AA409021, AA591369, AA795852, AA544179, AA137816, W14055, AA823952, C32788,  
D36052, C11655, C61888, D68462, C37208, C32936, AA012663, C61404, T00765, C38378,  
C28434, Z47062, AA900826, C23840, H35908, C91267, AA161734, AA294228, W36335.

20

SEQ ID NO: 242

25 AB011182, AC003009, AC002291, M90531, U12891, D87026, U33007, Z81537, Z78420,  
AL023781, AC000081, U23518, AC000072, AF000571, U49431, L77569, AC002403, U89364,  
AE000749, X61590, Y00822, M94081, AC000377, AF051426, Z49218, AA010836, N52145,  
AA011013, AA019431, R85665, AA016056, R85648, AA058678, AA021571, AA177094,  
AA984795, H88615, AA808210, T27140, C21245, AA014072, AA096922, AA870423,  
30 W16400, W10906, AA793805, AA420126, AA644830, C25692, C49392, C26648, C26279,  
C26632, C26656, C26745, C28591, C13946, D24272, AI030331, C59455, AA957665, D36588.

SEQ ID NO: 243

35 AB011182, Z83109, AC002448, Z46935, Z98981, AC004022, AL021026, Z50177, Z35641,  
X05659, AC003105, AF064861, AL021488, X14735, AF043706, X55026, AC002069, Z15124,  
Z66520, AC005247, U49102, AC004537, U28941, X15087, X06544, Z81513, X91218,  
M37083, U66820, AA888926, AA680329, AA857253, H02915, AI015118, N22080, AI039206,  
40 AA953973, AA016111, R84685, R76568, R84707, H28472, N75868, R33103, R84949,  
AA604416, AA058782, T54671, H95551, AA011115, R31662, AA449595, H03822, T54758,  
AA020805, D62124, AA913581, X85615, R33200, R79646, X85616, AA169479, D79415,  
H89588, AA257022, AI039705, T29455, AA654177, AA384147, AA479375, AA489078,  
N57541, AA256375, AA578458, AA160174, AA488831, AA807257, AA804396, AA043964,  
45 AA888142, AI049785, AA733156, AA552139, AA904213, AA729569, AA902548, AA767777,  
AA617680, T87422, AA984457, H45499, AA479280, AA506351, N64576, AA129434,

AA148518, AA506418, AA730503, AA768639, AA952956, AI015843, R62147, AA641864, AA330027, AA398752, AA708611, AA922221, W71635, AA797709, AA733664, C79168, AA675429, AA895131, AA023580, AI010275, AI008085, AA965923, H39492, AA246106, AI029544, AI043846, D64629, D27115, T46146, D33963, D27113, D64994, C23500, D65246, 5 W84915, C84049, AA819647, D73030, C48494, C83952, D71371, D27346, D71047, D40524, AA559819, AA925305.

---

SEQ ID NO: 244

10 X61693, Z65486, L31959, AE000713, D16512, D11100, L22431, D88268, U21863, AC003019, D86993, L20470, D16494, M33582, D87001, U40188, AC004641, AP000037, D16493, S73849, AA375966, AA251647, AA374591, N28647, N40395, AA191252, AA300607, AA721028, N92231, AA603510, AA602225, H49915, AA338853, AA096090, AA255805, 15 AA155805, AA827994, AA486134, AA256420, N27102, AA031715, N67289, AA463608, AA948180, T74390, AA047711, AA485967, AA935233, W39681, AA369893, AA868164, AA903479, AA177706, AA230649, AA796829, AA230653, AA060909, AA798495, AA276689, AA501147, AA435082, C78879, AA759697, AA509649, AA065451, AA003244, AI019180, AA003106, AA437582, AA791172, AA184719, AA675604, AA030678, AA600661, 20 AI007208, AA536698, AA689780, AA711685, T46035, R29770, AA586201, AI013450, X92798, AA998804, T02730, AA620258, AA739870, AA545862, T43867, T75863.

SEQ ID NO: 245

25 U48399, AC004069, AB013393, AB006705, AF025422, U41549, U41028, X13978, AC003681, AA805342, AA159599, AA443025, AA456296, AA700508, AA236843, AA251536, AA236795, AA236797, AI034417, AA635725, AA620854, AA129814, AA131387, AA129815, AA582531, AA193399, AA923065, AA456693, AA150935, AA479208, H67391, T83215, 30 AA193492, AA873197, AA032273, AA337925, AA453177, H67445, H61147, AA814955, AA479561, AA477401, AA437337, AA742281, H18470, N83277, AA747452, AA935529, H69930, AA923118, T49591, F19112, N63787, H79380, AA068654, C81358, AA407237, AA073741, AA241101, AA423396, AA981401, AA218317, AA423372, AA596315, AA105098, C81155, C80993, AA591743, AA230520, AA107327, AA073945, AA892826, 35 T09875, AA540566, C92107, C90829, AI026180, AA451568, T88619, Z34153, AA042266, T22535.

SEQ ID NO: 246

40 U68546, L22000, Z54141, X13141, M55015, Z99109, AC004708, AC004118, X62695, Y14083, U00039, AF013293, U60315, M22090, X90588, AE000421, M64985, L07305, U10413, U28142, D14525, AF023920, U53152, U00066, AB013393, U10412, Z29967, U41109, AF016420, AC004705, AC002502, Z79605, AA876550, AA746642, AA382643, 45 AA628196, AA169801, AA830932, AA716337, AA363131, W30985, AA164973, W05702, R53302, AA075107, H15502, Z45779, F12543, H09230, T74152, W47230, AA284633,

AA046186, AA505776, AA323837, AI025919, AA070092, T07873, AA017596, H53316, H12184, AA371498, Z41946, W24237, W31023, AA867068, AA512039, AA024374, AA871823, AA111131, AA013530, AA655966, AA958548, AI019169, AA718857, AA111360, AA555824, AA218439, AA957790, C06983, AI029962, AA751937, Z35744, C93933, 5 AA597601, C70605, D70104, C53466, AA471450, D69706, D66645, D65421, C13893, R65553, D66020, AA948790, H31601, AA849618, AA660795, AA841362, AA943244, C68724, AA952184, AA547861, AA494584, C72786, AA950723, W06819, AA661015, AA849106, N21913, AA390486, AA851513, D41123, D68520, AA660496.

10

SEQ ID NO: 247

AL021330, U89697, AC004231, U66589, AA458995, AA628196, R64023, U66423, AA948114, N25254, AA708798, AA085369, AA757558, N36089, AA111131, AA790571, 15 AA986871, AA426978, AA198610, AA114592, AA217736, AA867842, W30547, AA799199, AA214920, AA518421, AA198948, D77085, W12125, AA492788, AA497777, AA493043, AA698330, AA819448, N81480, AI008235, AA802857, AA570834, AA850054, AA991079, AA859041.

20

SEQ ID NO: 248

AF027390, M55673, U28686, Z73905, U95982, U67212, AC004525, M19799, U70857, AF067216, Y00023, AC002303, AF022727, AF067611, U13070, AA002081, AA831044, 25 AA113840, AA805579, AA767554, W91985, AA430583, AA740770, AA768675, AA433927, N68306, AA765872, AA004288, AA113127, AA002245, AA903135, AA705271, W91964, AA682981, R62689, AA306222, T72106, AA143762, AA325775, T78803, AA076252, AA192462, AA085427, R36350, AA305641, W37253, H00486, AA307902, AA001622, AA313689, AA054406, AA345397, AA356897, T55643, AA092407, AA305815, AA177031, 30 AA010149, AA010150, AA705484, AA811088, AA105116, AA790191, AA790153, AI006318, W09603, AA939578, D76727, AI046894, AA152861, AA983116, AA547630, AA390060, AA238985, AI021034, AA139951, AA589062, AA619440, AA414094, AA672120, AA869414, AA027542, AA686756, C93720, AA686313, C91205, AA687033, C93846, C54318, D66007, C93938, AA940889, AA660648, T20905, Z37604, D27073, H32361, H74821, AA897979, 35 AA660309, AA926472, AA952542, AA849396, X73736.

SEQ ID NO: 249

40 AE000046, AE000036, U35013, AC003080, AP000034, AE000004, AE000035, U09871, U26310, Z70691, U93196, Z75746, Z75893, U49830, AE000054, AF043105, Z36753, AC003043, AL021469, M34482, AF064860, AC003676, AE000002, M81688, AL008971, U10414, AC004644, U97003, L08380, M81689, Z37964, U97190, AF036444, AE000550, Z48007, X56851, AB008264, X82684, AC000076, U80028, Z98753, AL021480, U10402, 45 L09750, U40423, Z66514, U41748, Z54236, Z11115, U00040, AB015477, AF016414, Z66497, AC002456, M29154, Z68120, AE001117, AA527268, AA780210, AA431793, W74607,

- AA004205, N28891, N25768, AA643184, AA630321, AA854206, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA490320, W94384, AA424324, H49322, W68201, AA165561, AA678487, W04711, AA486288, AA114952, N73273, W02793, AA214609, 5 N67842, AA864358, W30934, AI034146, AA953621, W68202, W15581, H49323, AA693353, AA648400, H44141, H97860, AA205308, AA766793, AA971954, N20849, AA804853, AA485269, AA433927, AI004353, N62700, AA825778, AA114829, AA007422, H10401, AA552090, W31657, AA579359, R82009, H01442, AA216543, T97120, H69533, AA318373, AA430583, AA779558, AA025477, AA702752, W67753, AA329745, R22948, AA774128, 10 T97005, R82061, D78892, R81522, T35994, AA996354, AA775160, H48804, R34243, Z28536, AA025396, H48810, H44062, AA513115, W90371, AA287628, R62712, Z19475, C02732, AA777768, AA628646, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA822900, AA560406, AA079914, AA254405, AA561771, AA097088, AA822893, AA444663, AA623299, AA200448, AA960524, AA396152, AA863792, 15 AA560556, AA472424, AA183321, AA790566, D18314, AA116991, AA545942, AA718699, AA162299, AA288151, AA619931, AA718602, AA538093, AA980553, AA170629, W36441, AA688806, AA414642, AA690993, AA855805, AA517348, W71565, AA268163, AA690916, AA690917, AA756480, AA624507, AA270487, AA849531, AA848917, AA957315, AI009528, C06826, C23790, D22377, AA605573, D39911, Z18210, C32716, C89903, AA898115, 20 AA943491, AA051845, C93176, C84183, C90994, C92834, AA945230, D42886, AA438451, AA899962, C94217, AA842873, AA900113, AA924397, AA997400, C36068, AA957108, D73182, C62969, R30308, AA890788, AI044720, T02433, C25562, AA942692, AA996923, N96377, W06489, C09371, AA161699, N55612, AA712502, AA202444, C90271, AI037825, H33868, AA550648, W63192, AA925965, AA676066, AI045785, AA990991, C49169, 25 C54804, C54452, AI012441, W63171, AA925071, AA850803.

SEQ ID NO: 250

- 30 D90716, AE000181, AE000777, AF003626, S38698, W31813, W03446, AA011499, AA045835, H69988, AA336381, AA206741, AA348162, AA337762, AA917730, C17881, AA329851, AA045969, AA330339, AA148860, AA354856, H48612, H48619, AA318031, AA011500, AA361087, AA424428, AA094788, AA527916, AA182437, H22733, T53273, AA085882, AA188322, AA005133, AA320171, AA366689, H92225, AA809519, AA358978, 35 H44710, AA155839, W97332, W45747, AA727854, AA896228, AA059823, AA789939, AA140441, AA032863, AA760526, AA726236, AA267387, AA791055, AA666667, AA086866, AA096662, AI019235, AA799210, AA166173, AA881031, AA726992, W07991, AA691105, AA667205, AA667224, AA122715, AA472537, AA388943, AA894335, X89996, Z81222, X93228, AA951463, AA944617, C93776, AA941885, AA965140, C65935, 40 AA202573, AA583103, AA392380.

SEQ ID NO: 251

- 45 AC003080, AE000035, AE000046, AE000036, AP000034, AE000004, U35013, U26310, Z70691, Z75746, U93196, U09871, Z75893, AE000002, AE000054, AC003676, Z36753,

- AL021469, AC003043, U49830, AF043105, M34482, AF064860, U63312, Y10196, Z48007, D86251, U80028, AL008971, M81689, U41748, AB008264, AL021480, AC000076, AB010068, L09750, AF016414, Z66497, AC002341, AB009525, AB015477, Z84814, Z68120, U97190, U97003, Z54236, U10402, U10414, AC004644, AE001117, Z98753, Z37964,  
5 AC003998, Z11115, AF036444, X82684, X56851, U40423, AE000550, M29154, Z66514, M81688, AA527268, AA431793, AA780210, W74607, AA004205, N28891, N25768, AA630321, AA854206, AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA535623, W90372, AA603729, W94384, AA610141, W92013, AA148861, H97575, W68201, AA490320, H49322, AA214609, W04711, AA424324,  
10 AA486288, AA678487, AA114952, W30934, N73273, W02793, AA165561, AA864358, N67842, AA953621, AI034146, W68202, W15581, AA971954, AA693353, H49323, H44141, AA205308, AA433927, AA648400, H97860, AA825778, N20849, AA766793, AA485269, AI004353, AA804853, N62700, AA114829, AA007422, AA552090, R82009, W31657, H10401, AA579359, AA216543, H01442, AA318373, T97120, AA430583, AA779558,  
15 H69533, AA025477, AA702752, AA329745, AA774128, W67753, T97005, R22948, AA996354, R82061, R81522, D78892, T35994, AA775160, H48804, R34243, Z28536, H48810, AA513115, H44062, AA025396, C02732, W90371, Z19475, AA777768, AA628646, AA287628, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA561771, AA097088, AA822893,  
20 AA444663, AA623299, AA200448, AA183321, AA116991, AA790566, AA863792, AA960524, D18314, AA560556, AA472424, AA396152, AA288151, AA690916, AA756480, AA268163, AA718699, AA162299, AA414642, AA624507, AA619931, AA718602, AA980553, AA690917, AA270487, AA764531, AA690993, W36441, AA170629, AA688806, AA538093, AA855805, AA545942, W71565, AA849531, AA848917, AA957315, AI009528,  
25 C06826, C32716, AA605573, D39911, D22377, C23790, C84183, C92834, AA899962, C93176, C90994, AA051845, AA943491, T38519, C89903, AA438451, AA945230, D73182, AI012441, C25562, AA842873, AA942692, AI044720, C54804, C54452, C36068, AI045785, H33868, N55612, W06489, AA997400, C62969, AA550648, AA676066, AA712502, AA898115, AA924397, AA957108, AA925965, C94217, W63171, AA161699, W63192,  
30 AA850803, AA900113, AA996923, AA925071, AA202444, N96377, T02433, AA990991.

SEQ ID NO: 252

- 35 AE000004, AE000035, AP000034, AE000046, AC003080, U35013, AE000036, U26310, Z70691, U09871, Z75893, U93196, Z75746, AE000054, AC003676, AL021469, Z36753, AL009029, AF064860, AF043105, U49830, M34482, AE000002, AE001117, AB010068, Z66497, L09750, Z37964, AB008264, Z11115, U10414, Z48007, X56851, Z66514, U80028, Z54236, AC002456, AF016414, Z98753, AB015477, U10402, AC000076, X82684, AC004644,  
40 U97190, AC003998, Z84814, M81688, M81689, AL021480, AE000550, AL008971, U97003, AC002341, U40423, D86251, M97006, AF036444, U41748, Z68120, M29154, AA527268, AA780210, AA431793, AA004205, W74607, N25768, AA630321, AA854206, AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, N28891, W90372, AA603729, AA610141, W92013, AA148861, AA535623, H97575, AA490320,  
45 W94384, W68201, W04711, AA424324, H49322, AA486288, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA214609, AA953621, W30934, AI034146, W68202,

W15581, AA693353, H49323, AA205308, AA648400, H97860, H44141, AA433927, N20849,  
AA766793, AA485269, AI004353, AA804853, AA114952, AA971954, AA825778, N62700,  
AA114829, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533,  
AA702752, AA318373, AA430583, AA779558, W67753, AA329745, T97005, R22948,  
5 AA774128, W31657, R82061, R81522, AA996354, AA775160, AA216543, AA025477,  
H48804, R34243, Z28536, T97120, H48810, AA513115, H44062, AA025396, AA777768,  
AA287628, D78892, C02732, T35994, AA628646, W90371, R62712, R58722, AA175464,  
AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406,  
AA561771, AA623299, AA822900, AA200448, AA097088, AA444663, AA254405, D18314,  
10 AA183321, AA116991, AA790566, AA560556, AA960524, W71494, AA396152, AA863792,  
AA472424, AA690917, AA170629, AA688806, AA755397, AA690993, AA717461,  
AA756480, W71565, AA855805, AA270487, AA414642, AA681482, AA771596, AA718602,  
AA718699, AA545942, AA624507, AA619931, AA672971, AA288151, AA538093,  
AA980553, AA690916, AA268163, W10629, AA537842, AA162299, AA571015, W36441,  
15 AA849531, AA848917, AA957315, AI009528, C32716, C23790, D22377, AA605573, D39911,  
C84183, AA899962, C93176, AA051845, C89903, AA945230, C92834, AA676066, C90994,  
AA943491, AA438451, AA597644, T02433, AA202444, W06489, AA997400, AA842873,  
AI012441, D73182, AI045785, AI044720, AA712502, AA550648, C25562, AA942692,  
AA898115, AA990991, C06826, W63192, AA850803, AA900113, AA925965, W63171,  
20 C94217, AA957108, AA404797, AA924397, C36068, C54452, N55612, AA161699, C54804,  
AA996923, N96377.

SEQ ID NO: 253

25 AE000004, AE000046, U35013, AP000034, AC003080, AE000035, AE000036, Z70691,  
U09871, U93196, Z75746, Z75893, Z36753, AF064860, AC002287, AC003043, M34482,  
AC003676, AE000002, AE000054, AF043105, Y10196, AL021469, AL009029, U41748,  
AL021480, Z11115, AE001117, Z48007, U40423, Z37964, AF036444, Z66497, X82684,  
30 AF016414, AE000550, M81688, M81689, M29154, AC002341, U80843, U97003, U26310,  
U10402, AC004644, AL008971, Z54236, U97190, L09750, AB015477, Z68120, Z66514,  
AC000076, AB008264, Z98753, X56851, U10414, U80028, AC003998, AA527268,  
AA780210, AA431793, W74607, AA004205, AA630321, N25768, AA643184, AA854206,  
AA216596, AI038928, W45570, N28891, AA811726, AA001737, AI027706, N30763,  
35 W90372, AA603729, AA535623, AA610141, W92013, AA148861, H97575, W94384,  
AA490320, W68201, H49322, AA424324, AA214609, AA486288, AA678487, W04711,  
W02793, N73273, AA165561, AA864358, N67842, W30934, AI034146, W15581, AA953621,  
W68202, AA114952, AA693353, AA971954, AA205308, H49323, AA648400, H44141,  
H97860, AA433927, N20849, AA485269, AA766793, AI004353, AA804853, AA825778,  
40 N62700, AA114829, AA007422, AA552090, AA579359, R82009, H10401, H01442, W31657,  
AA216543, H69533, AA702752, AA318373, AA025477, AA329745, AA430583, AA779558,  
R22948, T97120, W67753, T97005, AA774128, R82061, R81522, AA775160, AA996354,  
H48804, Z28536, R34243, D78892, T35994, AA025396, H48810, AA513115, H44062,  
AA287628, C02732, AA777768, AA628646, W90371, Z19475, R58722, AA175464,  
45 AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406,  
AA822900, AA254405, AA097088, AA561771, AA822893, AA200448, AA472424, D18314,



AA116991, AA560556, AA790566, AA396152, AA863792, AA960524, AA183321,  
AA756480, AA855805, AA170629, AA270487, AA688806, W71565, AA268163, AA414642,  
AA162299, AA288151, AA718602, AA718699, AA545942, AA619931, AA624507,  
AA980553, AA690917, AA690993, AA690916, AA849531, AA848917, AA957315, AI009528,  
5 C23790, C32716, AA605573, C06826, C93176, C89903, C90994, AA945230, AA943491,  
AA899962, C92834, C84183, AA051845, C54452, N55612, AI012441, AI044720, AA997400,  
AA925965, D73182, T02433, AA996923, AA957108, AA990991, AA161699, C36068,  
W63192, AA712502, AA898115, AA942692, AA202444, D22377, D39911, H33868, W06489,  
C94217, AA850803, C25562, AI045785, W63171, AA842873, AA550648, AA924397.

10

SEQ ID NO: 254

AP000034, U35013, AE000036, AE000035, AC003080, AE000004, AE000046, U26310,  
15 Z75893, Z75746, U93196, AC003676, U49830, AC003043, M34482, AF043105, AE000054,  
AE000002, AF064860, AC002287, AL021469, Z36753, AL009029, Y10196, U10402, Z48007,  
AC002341, AC000076, AL008971, M81689, Z66497, D86251, AE001117, L09750, AC002456,  
AC004135, AC004703, Z11115, AF036444, Z70289, U95090, U80843, AC002066, Z68120,  
AC003998, U40423, Z98753, U41748, U80028, Z66514, AL021480, AB010068, AC004644,  
20 U10414, U97190, U97003, Z37964, X56851, Z54236, Z84814, X82684, M81688, AF016414,  
M29154, AE000550, AB008264, AA004205, W74607, AA780210, AA431793, AA630321,  
N25768, AA643184, AI038928, AA854206, AA216596, W45570, AA811726, AA527268,  
AI027706, AA001737, N30763, AA603729, W90372, AA610141, AA148861, W92013,  
AA490320, H97575, W04711, AA424324, AA535623, AA486288, AA678487, N73273,  
25 W02793, AA165561, AA864358, N67842, AA953621, AI034146, W68202, W15581, W94384,  
AA693353, H49323, N28891, W68201, AA205308, AA648400, N20849, H49322, AA766793,  
AA485269, AI004353, H97860, AA804853, W30934, AA433927, N62700, AA114829,  
AA825778, AA214609, AA007422, AA552090, AA579359, H10401, H01442, H44141,  
H69533, AA702752, W67753, AA971954, AA779558, R82009, AA430583, T97005, R22948,  
30 AA774128, R82061, AA318373, AA114952, R81522, AA996354, AA775160, AA329745,  
H48804, R34243, Z28536, H48810, AA513115, H44062, AA025396, AA777768, AA287628,  
AA628646, W31657, C02732, AA216543, AA025477, T97120, D78892, T35994, R58722,  
R62712, W81313, AA175464, AA200267, AA466843, AA611918, AA608178, AA079914,  
AA396402, AA560406, AA561771, AA822900, AA623299, AA200448, AA444663,  
35 AA560556, AA183321, D18314, AA396152, AA960524, AA790566, AA472424, AA116991,  
AA863792, AA170629, AA688806, AA718602, AA690916, AA756480, AA268163,  
AA690993, W36441, AA414642, AA624507, AA288151, AA162299, AA538093, AA690917,  
W71565, AA855805, AA545942, AA718699, AA980553, AA270487, AA619931, AA117622,  
AA208995, AA474849, C80271, AA712010, AA759545, AA510718, AA798564, AA168386,  
40 AA759392, AA274576, AA863529, AA939932, AA183584, AA543538, AA048938,  
AA162089, AA959168, AA546863, AA177481, AA244613, AA245968, AA840456,  
AA880395, W71494, AA036386, AA155555, AA198582, AA416281, AA547224, AA277326,  
AA958885, AA106584, AA286405, AA849531, AA848917, AA957315, AI009528, D22377,  
C23790, D39911, AA605573, C32716, AA438451, AA925071, C89903, AA899962, C90994,  
45 AA945230, C93176, C92834, AA051845, C84183, AA943491, T02433, C36068, C54452,  
C54804, AA202444, AA842873, AA996923, N55612, AA550648, AA850803, N96377,

AA957108, AA676066, AA712502, AA924397, C94217, W63171, AA942692, W63192, AA925965, AI044720, AA997400, AI012441, AA990991, AI045785, D73182, C25562, W06489, AA161699.

5

SEQ ID NO: 255

AC004381, Z34294, AE001023, AG000110, AF043700, AC002050, Z19595, Y15685, Z98557, D21126, Z70757, AA115418, AA326624, N21005, H91682, AA836210, AA722830,

- 10 AA024930, AA507115, AA808743, AA847250, R71586, AA992661, AA296828, AA526931, N95179, N57342, AA143283, W40406, AA587485, H65350, R79180, AA946707, AA298828, AA503924, AA486261, AA437238, AA442303, AA765280, AA177015, W56676, AI033929, AA235699, AA437013, AA569324, AA024825, AA772627, AA693744, AA635984, AA442843, AA461611, AA297347, AA229574, AA083801, N99131, N32134, H99612,
- 15 AA297186, AI033160, AI027413, AA876042, AA642111, AA622287, AA461439, AA452671, N29407, AA404217, AA251853, AA302967, AA687956, H96097, H04783, AA991975, AA745968, W37497, AA918131, AA946883, W40407, AA508853, AA302689, AA298381, AA524571, W69596, AI022024, AA861434, AA831222, AA740528, AA724107, AA459952, AA927760, AA298536, AA298240, AA292566, AA286750, AA143393, AA130392, W69409,
- 20 W24131, N58333, N57307, H37822, AA921691, AA915895, AA545320, AA734466, AA636550, AA921220, AA415216, AA451042, AA388279, AA174380, Z46297, R65246, C72021, C72540, D76297, AA550414, C47036, C42147, AA859311, C41752, C43660, D75878, T37831, C49142.

25

SEQ ID NO: 256

AC004381, U29082, AC002078, M94080, M33582, U39655, AC005161, U50193, X16549, X16553, Y12025, U53344, U00036, AA412384, AA837145, AA602982, AA115419,

- 30 AA478697, H67227, AA587840, AA133086, R76363, H81547, H83962, AA665443, AA251488, AA662495, AA301274, AA976922, AA132987, AA722928, AA478563, AA579347, AA501519, AA169423, R76688, N62994, AA629042, AA013476, AA018206, AA252018, N79902, AA644296, N23634, R41716, AA125908, F02250, N79270, N94499, AA236462, AA662818, N64551, AA436025, AA962585, AA127093, R49041, R43118,
- 35 AA115152, N62138, F02743, AA125794, AA639166, AA281970, AA573768, AA127071, Z40901, F02957, AA722997, AA347035, AA365473, AA436317, R77437, AA574240, AA729358, AA436192, H01511, W73300, AA577027, W96984, AA530599, C22934, F14212, AA568080, C35274, AA751821, AA751972, C92915, D27726, AA926098, AA924800, D64416, AA923860, AA892301, AA549967, C52515, D32818, AA945020, AA901415,
- 40 C55124.

SEQ ID NO: 257

- 45 AC004381, AE001023, AG000110, AC002050, AF043700, D21126, Z98557, Z19595, Z70757, M35862, AF001549, Y15685, AA115418, AA326624, AA024930, AA836210, N21005, H91682, AA722830, AA524571, W56676, AA442843, AI022024, AA724107, AA298381, AA302967, AA915895, AA847250, AA918131, AA927760, AA459952, AA808743, AA772627, AA745968, AA921691, AA404603, AA302689, AA298828, AI027413, W40407,

- W24131, H27066, N32134, AA693744, AA768383, AA861434, AI016392, AA622287, AA586689, AA486260, W37391, AA442303, AA298536, AA298240, AA297222, AA083801, AA074204, AA024825, R79180, H07945, R71586, AA404217, AA296828, AA143393, W37497, AI033929, AA284849, AA946883, AA757574, AA676676, AA662435, AA642111, 5 AA635984, AA569324, AA460041, AA894509, AA461439, AA461611, AA177015, AA130392, N99131, N57307, AI033160, AA235699, AA991975, AA992661, AA687956, AA297394, AA297347, AA292566, AA526931, N57342, H99612, H06143, AA946707, AA876042, AA831222, AA651857, AA630335, AA587485, AA578220, AA508853, AA507115, AA297186, AA284802, N29407, AA545320, AA734466, AA636550, AA921220, 10 AA174380, AA388279, W64017, Z46297, R65246, C72021, C72540, D75878, C42147, C43660, T38141, C49142, AA550414, D76297, T37831, AA859311, C47036, C41752.
- 

SEQ ID NO: 258

- 15 AC004381, U29082, AC002078, Z72625, M33582, Z86061, U39655, Z72626, X16553, U53344, Z92815, M94080, AL010222, D10040, U50193, Z72828, X16549, Z72829, AA837145, AA602982, AA115419, AA412384, AA587840, H81547, R76363, AA665443, AA251488, AA662495, H67227, AA478697, AA301274, AA132987, AA133086, AA722928, 20 AA478563, AA579347, AA501519, H83962, R76688, AA629042, AA976922, AA252018, N79902, AA169423, N62994, AA644296, AA013476, T26917, AA018206, T26928, N23634, AA329023, R41716, R49041, R43118, F02743, W73300, AA457471, AA334995, N90126, T84778, AA645726, W36240, AA061413, W96984, AA530599, AA802677, AA391861, F14212, C22934, AA892301, Z26665, H31953, D32818, AA926098, AA924800, C52515, 25 AA751821, D64416, AA549967, AA539408, C92915, AA923860, C51698, D27726, AA945020, AA901415, C55124, T12735, C35274, AA751972, AA568080, AI045499.

SEQ ID NO: 259

- 30 AC004381, AE001023, D21126, Y15685, L10388, AC002050, Z70757, Z98557, Z19595, AF043700, AA115418, AA326624, AA722830, AA836210, AA024930, N21005, H91682, AA024825, AA297394, AA861434, N29407, AA635984, R79180, W40407, AA442843, AA284849, AA586689, AA297222, AA284802, AA292566, N57342, AA662435, AA404603, 35 AA130392, AA486261, AA569324, AA503924, N57307, AI016392, AA630335, AA079126, AA298240, AA991975, N95179, AA992661, AA687956, AA587485, AA578220, AA302967, H99612, AA946707, AA876042, AA831222, AA526931, AA437238, AA437013, W37391, AA915895, AA640985, AA508853, AA143283, AA297186, AA251853, AA918131, AA297347, N99131, N58333, AI022024, AA921691, AA765280, AA740528, AA651857, 40 AA286750, AA298381, AA507115, W69596, AA298536, AA724107, AA618605, AA229674, AA229574, W69409, W40406, H96097, H65350, H37822, H04783, AA745968, AA847250, AA302689, AA298828, AA927760, AA772627, AA524571, AA486260, AA235699, AA545320, AA734466, AA636550, AA921220, AA388279, AA174380, Z46297, R65246, C72540, C72021, C41752, C49142, AA550414, C47036, C43660, Z35625, T37831, C42147, 45 D75878, D76297, AA859311, F19815, C62071, C63980, AA539230, AA875056, D33778, C70418, AA942029, C10094, W68996, AA899150, AA391082, AA859705, AA697636, AA540373, AA695973, D34863, AA699026, D48829, H39253, AA246420.

## SEQ ID NO: 260

- AC004381, U29082, AC002078, U39655, M33582, M94080, U53344, AC002451, X16549, D10040, X16553, Y12025, U50193, AA837145, AA412384, AA602982, AA478697, 5 AA115419, AA587840, R76363, H81547, H67227, H83962, AA665443, AA133086, AA251488, AA976922, AA662495, AA301274, AA132987, AA169423, N62994, AA722928, AA478563, AA013476, AA579347, AA501519, R76688, AA629042, AA018206, AA252018, N79902, H70300, AA644296, N23634, AA127071, F02250, AA716541, R41716, AA125908, AA662818, N79270, N62138, N64551, AA236462, AA436025, AA962585, R43118, 10 AA115152, R49041, F02743, AA125794, AA281970, AA639166, AA127093, AA573768, N94499, AA877109, AA449432, AA608686, Z40901, W52069, AA688218, AA398554, F02957, AA347035, W73300, AA061413, W96984, AA530599, F14212, C22934, AA926098, C92915, D27726, AA924800, AA923860, C55124, AA892301, AA549967, AA751821, AA945020, D32818, AA901415, D64416, C52515, C35274, AA751972, AA568080.

15

## SEQ ID NO: 261

- AC004381, Z93385, Z48717, AL022198, AE001023, Y15685, AC002050, AF043700, Z84815, 20 D21126, AA115418, AA326624, AA836210, AA024930, AA722830, N21005, H91682, AA918131, AA503924, AA921691, AA642111, AA297222, AA894509, AA915895, AA251853, W69409, AA286750, AA740528, W56676, AA676676, AA143283, AA459952, AI027413, AA486260, AA284849, AI033160, AI016392, AA861434, AA847250, AA768383, AA724107, AA765280, AA460041, AA507115, AA404217, AA177015, AA130392, 25 AA083801, AA640985, AA946883, W40406, AA569324, AA296828, AA586689, N32134, AI033929, N95179, AA991975, AA757574, AA461439, AA897649, AA143393, N57342, N57307, AA526931, AA662435, AA635984, AA630335, AA461611, W37391, N99131, H99612, AA578220, AA622287, AA831222, AA992661, AA693744, AA437013, AA297394, AA297347, AA292566, AA284802, AA946707, AA876042, N29407, AA687956, AA587485, 30 AA297186, N58333, AA508853, AA486261, AA437238, W37497, H37822, AI022024, AA545320, AA734466, AA636550, AA921220, AA174380, AA388279, R65246, C72021, C72540, C41752, C42147, D75878, AA550414, C47036, C43660, T37831, C49142, D76297, AA859311, AA697636, D48829, T44877, AA859705, AA246420, C10094, AA942029, AA699026, D34863, C62071, C63980, AA875056, AA540373, AA539230, AA957800, 35 AA899150, AA695973, C70418, W68996, AA391082.

## SEQ ID NO: 262

- 40 AC004381, U29082, M94080, U39655, M33582, X16553, U53344, Z72828, X16549, AC004301, Z72829, AL010222, U50193, Y12025, D10040, AA837145, AA602982, AA115419, AA412384, AA587840, R76363, H81547, AA665443, AA251488, AA662495, H67227, AA301274, AA478697, AA132987, AA722928, AA478563, AA133086, AA579347, AA501519, R76688, H83962, AA629042, AA252018, AA976922, N79902, AA169423, 45 N62994, AA013476, AA018206, AA644296, N23634, R49041, F02743, R43118, R41716, W73300, AA334995, N90126, AA061413, AA530599, W96984, AA163443, AA612360, AA919946, AA967393, C81197, AA163825, W33363, AA940335, AA522025, AA238429, AA915211, AA518646, AA930778, AA275870, AA177383, AA119983, AA058115, W12739, AA168575, F14212, C22934, C55124, C52515, C92915, C35274, C51698, AA549967, D32818,

AA945020, AA901415, AA892301, AA568080, D64416, AA923860, D27726, AA926098, H31953, AA924800

5 SEQ ID NO: 263

~~Z13009, L08599, Z18923, X52279, X12790, L34793, L34792, S72491, L34791, S72397,~~  
X06115, X06339, L34794, X60967, X60968, X06340, X60969, X60966, X58518, X79076,  
M81894, M83822, D55723, X63629, AF033826, R18632, AA350567, AA393866, AA968708,  
AA627539, AA789905, W34925, AA530118, D21428, AA591039, AA619058, AA104868,  
10 AA198453, AA413826, AA510308, AA959889, AA051340, AA066361, AA561627,  
AA497505, C94993, AA042504, C06552, AA696737, AA497288, H36182, AA695064,  
C67449, H37133, D27932, D32712, C52050, C71282, D39592, AA816980, C55002,  
AA391562.

15

SEQ ID NO:264

U27342, Z68303, AC004781, S73774, AL022101, Y07798, X90875, Y07794, D88263,  
M64432, U51280, AC001228, Y12837, U65015, AA350564, AA350565, AA468654,  
AA765067, R41600, AA350566, AA853438, R39007, T03595, AA412215, AA470028,  
20 AA412297, AA470131, AA469999, AA903683, AA093062, AA351759, R71491, AA258193,  
AA258192, AA720846, AA937165, T10309, R36757, AI003321, T03830, AA192826, R19610,  
W28150, AA324720, AA062006, AA387949, AA839038, AI020928, AA795918, AA415042,  
AA116532, W98366, AA608357, AA386458, AA691023, AI047462, AA792773, AA690308,  
AA122697, AA172715, W42322, AA608314, AA217326, AA549457, AA544778, AA734976,  
25 AA241231, AA117090, AA000423, AA823809, AA467031, AA770931, AA645614,  
AA681737, AA386418, AA790521, AA592036, AA673138, AA574842, AA254046,  
AA111508, AA097379, AA770877, AA880646, C76432, AA529411, AA517533, AA111435,  
AA008950, AA647505, AA655324, AA797631, AA222588, AA036250, AA350564,  
AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595,  
30 AA412215, AA470028, AA412297, AA470131, AA469999, AA903683, AA093062,  
AA351759, R71491, AA258193, AA258192, AA720846, AA937165, T10309, R36757,  
AI003321, T03830, AA192826, R19610, W28150, AA324720.

35 SEQ ID NO:265

U27342, AC004781, S73774, Z68303, AL022101, Z84480, AC000097, M64432, D88263,  
U51280, AC001228, AA350564, AA350565, AA468654, AA765067, R41600, AA350566,  
AA853438, R39007, T03595, AA093062, AA903683, AA775269, AA290925, AA937165,  
R34308, AA477363, AA989352, AA290585, W28150, AA258193, AA988332, R71491,  
40 AA720846, H92820, AA324720, AA488541, AA258192, AA488406, AI003321, T10309,  
AA062006, AA387949, AA867162, AA881310, AA116532, AA509748, W98366, AA770877,  
AA529411, AA097379, AI047462, AA608314, AA790521, AA122697, AA000423, AA592036,  
AA517533, AA797631, W68921, AI045772, C82795, F15109, U90031, AA141112, C41516,  
AA818364, AA140834, C83651, AA892748, D39545, C47745, AI011095.

45

SEQ ID NO: 266

U27342, AC004781, Z68303, S73774, D88263, Y07794, AL022101, X90875, Y07798, Y12837, M64432, AC003002, AC001228, U51280, AA350564, AA350565, AA468654, AA765067,  
5 R41600, AA350566, AA853438, R39007, T03595, AA469999, AA470028, AA470131,  
~~AA412215, AA412297, AA903683, AA093062, AA324720, T03830, W28150, AA258193,~~  
AA258192, AA720846, AA937165, T10309, AI003321, R71491, AA350564, AA350565,  
AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595, AA469999,  
AA470028, AA470131, AA412215, AA412297, AA903683, AA093062, AA324720, T03830,  
10 W28150, AA258193, AA258192, AA720846, AA937165, T10309, AI003321, R71491, T76120,  
AI045772, C82795, D39049, AA859351, AA997761, AA818364, C07408, D39545, U90031,  
AA956118, AI011095, AA141112, AA140834, AA875559, AA892865, C07407, AI009091,  
AA892748, C83967, F15109, D39020, H75267, C83651.

15

SEQ ID NO: 267

J00370, V00727, V01184, AC000073, Z78022, D50522, X82202, X99699, D50521, X59856,  
AF001905, T80545, AA911966, T66962, AI040139, AA778816, AI022235, H71003,  
20 AA477579, W95135, R32943, AA203704, R33921, R33906, R31511, AA387949, AA002910,  
AA163393, AA016332, AA560074, AA871746, AA107526, AA856332, W66852, AA759484,  
AA733777, AA241027, AA198681, W17533, AA674342, AA059902, AA086951, AA123955,  
AA143959, AA657028, AA109633, AA254925, AA272846, AA693048, AA867023,  
AA764115, AA067213, AA982959, AA840176, AA220253, W36387, AA735681, AA433213,  
25 AA859989, D25097, AA440514, D24327, AA202772, AI029778, AA803282.

SEQ ID NO: 268

30 S73774, Z68303, U27342, AC004781, AL022101, Y07798, Y07794, D88263, Z81588, X90875,  
Z62640, Z84480, AC001228, U51280, Y12837, M64432, AA350564, AA350565, AA468654,  
AA765067, R41600, AA350566, AA853438, R39007, T03595, AA469999, AA470028,  
AA412297, AA412215, AA470131, F03038, AA093062, AA903683, AA258193, AA720846,  
AA258192, AA937165, T03830, AI003321, T10309, AA324720, AA989352, R71491, W28150,  
35 AA062006, AA387949, AA415042, AA839038, AA795918, AI020928, AA881310, AA867162,  
W98366, AA116532, AA509748, AA645614, AA254046, AA008950, C76432, AA797631,  
AA880646, AA426992, AA655324, AA117090, AA690308, AA517533, AA217326,  
AA636421, AA467031, AA529411, AA612323, AA110509, AA549457, W42322, AA608357,  
AA792773, AA770877, AA833314, AA000423, AA111508, AA386418, AA647505,  
40 AA097379, AA386458, AA222588, AA111435, AA109906, AA036250, AA681365,  
AA122697, AA241231, AI047462, AA734976, AA500187, AA592036, AA172715, AA790521,  
AA763315, AA673138, AA691023, AA608314, AA574842, AA727407, AA544778,  
AA177596, AA770931, AA931008, AA823809, AA681737, C68298, H35145, D71072,  
AA684898, AA685924, Z17919, AI045772, AA687072, AA859351, AA818364, AA140834,  
45 D39545, U90031, AA997761, D39049, AA141112, AB009090, C83967, C07407, C07408,  
F15109, AA892748, AI011095, C83651, C82795, D39020, AA875559.

SEQ ID NO: 269

5 Z13009, Z18923, L08599, X52279, X12790, L34793, L34794, X06115, X06339, S72397,  
L34791, L34795, X60967, X60965, X60968, S72491, L34792, X60966, X06340, X58518,  
~~X79076, M81894, M83822, AC005142, D55723, M15343, Z92540, X63629, AF033826,~~  
M26125, D90913, AA393866, AA219129, AA968708, AA627539, AA157695, AA789905,  
W34925, AA530118, D21428, C79764, AA591039, C79768, C79219, AA066361, AA104868,  
AA497505, AA561627, AA959889, AA413826, AA530017, AA681704, AA718524,  
10 AA510308, AA686498, AA042504, AA686540, C49571, AA685323, AA497288, AA696737,  
AA695064, H35193, AA586199, AI044495, H37133, AI026234, AA391562, AA816980,  
D47686.

15 SEQ ID NO: 270

AC004781, U27342, S73774, Z68303, AL022101, D88263, Z84480, U51280, AA350564,  
AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595,  
AA093062, AA903683, AA720846, AA412215, AA258192, AA470131, AI003321, AA412297,  
20 AA470028, AA469999, AA324720, AA989352, T10309, R71491, W28150, AA258193,  
AA937165, AA387949, AA867162, AA881310, AA062006, W98366, AA116532, AA509748,  
AA517533, AI047462, AA000423, AA823809, AA690308, AA691023, AA217326, AA797631,  
AA241231, AA529411, AA655324, AA467031, AA222588, AA608314, AA681737,  
AA770877, AI037418, AA152914, AA647505, AA122697, AA172715, AA592036, AA549457,  
25 AA790521, AA104839, AA097379, T76120, AI045772, AA697531, AA859351, AA141112,  
C07408, AA875559, AA892748, C83967, AA140834, AA818364, AI009091, AA956118,  
C83651, C82795, C07407, F15109, H75267, AA997761, AA892865, U90031, AI011095,  
D39545.

30

SEQ ID NO: 271

, Z68303, AC004781, S73774, U27342, AC004548, D88263, AL022101, Y07798, Y07794,  
Z84480, AB002366, U51280, D87957, M64432, AA350564, AA350565, AA468654,  
35 AA765067, R41600, AA350566, AA853438, R39007, T03595, AA093062, AA412215,  
AA412297, AA470131, AA313215, AA470028, AA903683, AA469999, R71491, W28150,  
AA258192, AA258193, AA720846, AA937165, R36757, AA158308, AI003321, T10309,  
R19610, AA989352, AA351759, AA324720, AA062006, AA387949, AA881310, AA867162,  
AA142668, AA239635, AA277006, AA146176, AA183716, AA982676, C76076, AA451083,  
40 AA088951, AA920455, AA655713, AA718480, AA562390, AA575055, AA839028,  
AA116532, AA967869, W98366, AA509748, AA274183, Z17919, AI011775, AA685924,  
AI045772, AI007874, AA687072, AA899688, AI012563, C06955, AA684898, H35145,  
AA892865, D39049, AA859351, D39020, AA875559, AA892748, F15109, AA817479,  
C82795, AA494872, D39545, C83651, AI011095, AA141112, AI009091, AA997761,  
45 AA651158, U90031, AA140834, C83967, AA801403, AA818364, AA956118, AA801402.

## SEQ ID NO: 272

X82202, X02796, T80545, AA350567, R18632, W95135, AA232983, AI022235, AA233369,  
AA778816, AA856332, AA107526, AA163393, AA560074, AA871746, AA016332,  
5 AA015494, W66852, AA163094, AA919948, AA733777, C26223.

---

## SEQ ID NO: 273

10 Z68303, AC004781, AL022101, Y07794, AC004548, D88263, Y07798, Z84480, U67543,  
M64432, AF038605, AA350564, AA350565, AA468654, AA765067, R41600, AA350566,  
AA853438, R39007, T03595, AA903683, AA258192, AA720846, T08257, W28870, R36757,  
AI003321, AA210893, AA324720, R19610, R71491, AA989352, T31251, AA258193,  
AA351759, T10309, AA937165, W28150, AA867162, AA881310, AA509748, AA023919,  
15 AA415519, AA467031, AA647505, AA691023, AA549457, AA241231, AI047462, AA797631,  
AA517533, AA172715, AA608314, AA000423, AA217326, AA690308, AA790521,  
AA059975, AA770877, AA681737, AA222588, AA823809, AA796249, AA655324,  
AA529411, AA097379, AA892748, AA997761, D39049, D39020, AA859351, AA494872,  
AA651158, F15109, D39545, U90031, AA140834, AA875559, AA141112, C83967,  
20 AA818364, AI012097, C83651, C82795.

## SEQ ID NO: 274

25 Z48163, U62325, U84008, U84010, X82202, X02796, U84009, T80545, AA350567, R18632,  
AA299431, W29109, H23302, F05409, AA456921, AA314378, AA300128, AA300270,  
AA054590, AA317632, AA087734, AA560074, AA856332, AA163393, AA016332,  
AA107526, AA871746, AA015494, W66852, AA163094, AA733777.

30

## SEQ ID NO: 275

U27342, S73774, AC004781, Z68303, AC004548, Y07798, D88263, AL022101, Y07794,  
U51280, M64432, Z84480, AA350564, AA350565, AA468654, AA765067, R41600,  
35 AA350566, AA853438, R39007, T03595, AA412297, AA469999, AA470028, AA412215,  
AA470131, AA093062, AA903683, R19610, R71491, AA258192, AA720846, AA937165,  
T10309, AA158308, AI003321, R36757, AA258193, AA324720, AA351759, W28150,  
AA989352, AA062006, AA387949, AA881310, AA867162, W98366, AA718480, AA655713,  
AA562390, AA509748, AA116532, AA967869, AA239635, AA146176, AA575055,  
40 AA982676, AA142668, AA920455, C76076, AA274183, AA451083, AA088951, AA839028,  
AA440423, AA697347, AA567580, AA899688, C06955, AI045772, AA875736, AA201878,  
AI012563, AI007874, AI011775, AA892865, AA892748, AA801402, C83651, AA966766,  
AA966377, AA801403, AA956118, T01056, AA997761, C68298, AI011095, AA140834,  
AA859351, C82795, U90031, AA818364, D39049, AA494872, F15109, AA141112,  
45 AA651158, AI009091, D71072, AA875559, C83967, D39545, D39020.



SEQ ID NO: 276

Z18923, L08599, Z13009, L34792, S72491, X52279, S72397, L34791, X06115, X60969,  
X06339, U62325, D10011, M81190, Z11581, U08258, M83822, U84010, U84008, AF006482,  
5 U84009, AA350567, R18632, T80545, T71965, AA393866, AA036671, AA456921,  
~~AA087734, AA116990, AA163393, AA856332, AA107526, AA871746, AA560074,~~  
AA016332, AA120757, AA015494, AA163094, AA733777, AA143959, C78091, AA123955,  
AA267377, AA529729, AA198453, AA217509, AA042504, AA497288, C71282, AA494745,  
AA801146, C64820, C62760, C65202, AA735920, H37133, C94993, C67449.

10

SEQ ID NO: 277

Z68303, AC004781, AC004548, AL022101, D88263, Y07798, Y07794, U95626, M64432,  
15 Z84480, AA350564, AA350565, AA468654, AA765067, R41600, AA350566, AA853438,  
R39007, T03595, AA469999, AA903683, AA093062, AA470131, AA412297, AA412215,  
AA470028, AI003321, R19610, AA989352, AA324720, R71491, C01169, AA351759,  
W28150, AA346183, R80825, AA258193, R70566, AA258192, AA210893, AA937165,  
AA720846, N75173, T10309, R36757, AA158308, H83037, T31251, R24022, T08257, N91738,  
20 N28313, W28870, AA062006, AA387949, AA881310, AA867162, AA920455, AA967869,  
AA274183, AA655713, AA562390, AA982676, C76076, AA142668, AA239635, AA088951,  
AA839028, AA575055, AA718480, AA146176, AA451083, AA509748, AI007874, AI011775,  
AA684898, Z17919, AA685924, C06955, AA687072, AA899688, H35145, AI045772,  
AI012563, R86425, C83651, C82795, AA531814, U90031, D39049, D39020, C83967, F15109,  
25 AA997761, AA892748, AA875559, AA859351, AI011095, AA651158, AA818364, AA956118,  
AA801403, AA140834, D39545, AA892865, AI012097, AA925264, AI009091, AA801402,  
AA494872, AA141112.

30 SEQ ID NO: 278

U75272, J04443, X59754, M23077, M18667, X04644, M18660, M23070, M18665, M23075,  
M23073, M18663, M23071, M18661, M88652, M23072, M18662, M23069, M18659, M23076,  
M18666, M18664, M23074, M25987, M25988, M25993, M25989, M20920, J04601, M26027,  
35 J00281, M59237, M73750, M25985, X59753, X59752, M59235, U14406, M19698, AF020510,  
AF020512, X53037, X59755, M26031, M23165, J00285, D00215, D38104, D45187, M88653,  
M20788, AF036953, L08418, Y10928, AF036319, M25986, J05036, M84418, J00621, U90321,  
M57260, X97399, M25990, M84422, S49650, M11233, X05344, M63135, L02636, M84742,  
M84424, U19717, X69465, U94791, L34361, Y11668, U94795, M36482, L44118, U41166,  
40 L44119, X69193, Z36157, Z36158, U39199, U71217, AF020513, X76053, L34360, U30251,  
AF020509, AF020511, U41165, AA906670, AA534285, AA334924, AA335157, T28355,  
AA335226, AA335213, AA335152, AA335225, AA335151, AA334918, AA334923,  
AA335205, AA335206, T62158, T61932, AA335161, AA335113, AA335108, AA335145,  
AA335201, AA335110, AA335143, AA334925, AA307644, H58586, AA679226, AA335896,  
45 AA410697, AA057554, AA603295, AA433879, H78707, H14144, AA074710, F15763,  
AA282121, AA133501, R87854, AA120315, W13531, AA172581, AA562772, AA028632,

- AI035456, AA674642, AA880703, AA739244, AA823912, AA118517, AA817360, AA539362, AA246980, AA441102, AA950510, AA803939, AA949225, D68834, D70510, M88822, C11732, D70490, M80169, D70773, Z14725, D69774, C11719, D70266, D69602, AA520727, AA531934, D65766, AA858922, D69484, AA519302, D40781, C69785, AA848792, D69455, 5 AA892100, D69495, D69996, D70271, D70385, D70109.
- 

## SEQ ID NO: 279

- 10 AB002334, M73718, M27717, AC002067, Z49235, AC004740, AB011102, M37814, Z98744, D13641, AF000152, AC004015, U81556, U32326, Z78417, Z68316, AC004544, Z75539, S45406, AA884499, AA358171, AA476618, AA923299, N31318, AA767128, T16272, AA130639, AA122201, R81382, AI050868, AA548662, AA429467, AA376220, T85339, AA632310, W46587, N73476, H08150, Z30154, AI038648, AA969830, AA971607, 15 AA836443, AA653179, AA578086, H99657, AA833921, AA807902, W67693, D55907, AA187521, AI017410, AA814462, AA214503, AA209422, W63794, N28354, H03910, AI015056, AA888526, AA604383, AA586610, AI052722, N31612, AI027159, AA888334, AI027906, AA179400, AA922771, AA706343, AA682625, AA525897, AA485217, AA306471, AA282221, N29656, H27823, R13913, F05001, Z19816, AA782560, H23416, AA581660, 20 AA069521, H22320, R62283, AA778382, AA226827, AA035607, W37761, N27024, R63378, AA806971, AA639817, AA188936, N25005, AI025572, AA490953, AA490879, AA228362, AA182881, W40267, N21523, H16846, T66803, AA858168, H81767, N22843, AA657613, H73918, N20117, N24401, AA057815, AA504563, AA523596, N20388, AA939766, AA794705, AA863940, AA123123, AA217673, AA096644, AA855480, AA474154, C89108, 25 AA162338, AA389552, AA168055, W14081, AA895478, L11835, AA517590, AA543798, AA145689, Z36404, AI037527, AA174418, T37837, T38875, C68354, F14422, C49410, C47200, C42796, C42668, AA660084, D75577, AA113533, AA228253.

## 30 SEQ ID NO: 280

- AB002334, AP000046, U80029, U80678, X83720, X83721, X83719, L36453, L01902, U67476, AC004513, AF008958, Y13013, L36443, L01884, X99960, L12624, U59824, L21938, M83544, L21941, AF040655, U59823, X60381, L13934, Y13001, Z72665, AF021875, U51993, U97015, 35 Z68000, X91648, AC003100, X89598, AB011370, AA732697, R34331, AA490173, R34353, T97185, AA358170, R34468, AA213793, AA833852, AA252581, R63338, AA453724, AA774553, AI040839, AA939302, AA046369, T07867, R62976, AA099897, R61198, AA039614, AA554354, AI004712, W52791, AA219189, M77996, N59350, AI016358, N20509, AA687164, AA856726, AI039655, AA203448, AA815840, AA154089, AA637099, AA511424, 40 AA637522, AA592225, AA726848, AA592204, AA469486, AA850337.

## SEQ ID NO: 281

- 45 U78678, D87741, U85089, U73525, X77234, U52111, M33753, M15442, M11185, L01095, X55317, S73471, M25888, M27110, AF035586, X03098, M14674, AF037222, Z86000,

- X02809, M20752, M54927, U49120, AA847574, AA149387, AA135732, AA922637,  
AA936062, AA531567, AA425729, H49133, AA422000, AI017377, N93282, AA931709,  
T83643, AA424838, AA422076, R01195, H62744, T75066, W25122, AA374578, R65722,  
AA335669, D80535, AA360427, R68402, T55701, AA135776, T55617, T81252, T83806,  
5 AA151477, H20901, D60042, R16704, D80859, R97305, AA512991, AA349005, R10838,  
~~AA331147, AA336200, D81732, N20619, AA335929, AA373357, N88208, AA335103,~~  
AA354131, AA331146, R68603, AA418654, AA424305, AA401527, N41898, AA418592,  
N32554, W23283, H98948, AA338792, AA365792, AA632452, AA913286, H69272,  
AA393581, H20850, AA860372, AA738400, R54031, H28843, AA770375, AA004397,  
10 AA036198, AA637087, AA032895, AA209077, AA789379, AA592501, AA592073,  
AA644773, AA242321, AA792717, AA832853, AA000175, AA469755, AA106711, W13713,  
AA222077, AA073729, AA285740, AA030595, AA060539, W89620, AA511743, AA250630,  
AA048844, W59660, AA008295, AA674262, AA032382, AA388713, AA184824, AA572547,  
AA242573, AA571603, AA183767, AA432550, AA958947, AA840030, AA023650,  
15 AA600673, AA250144, AA638019, W09045, W85653, AA110456, W91027, AA612441,  
AA004012, AA270992, W62605, W08743, AA059946, AA119526, AA754865, AA764519,  
AA840310, W08102, AA497633, AA623554, W98890, AA874496, AA199485, AA097363,  
W36345, AA168042, AA754894, W82448, AA163573, AA434940, AA547350, AA073941,  
AA764527, W29475, W40649, W64225, AA038389, AA111279, AA123833, C89094,  
20 AA537607, AA624825, AI037102, W12906, W36498, W59419, W84175, AA549721,  
AA792111, AA637113, AA681507, AA856127, AA647794, AA230498, AA688518,  
AA693260, W65764, AA060680, AA240323, AA416465, AA800180, AA538785, AA697870,  
AA979477, AA990772, AA951020, AA952185, AA979349, AA695283, AA820785,  
AA952207, AA948974, AA735177, AA816464, AA979170, AA978753, AA979400,  
25 AA820529, AA803706, D74758, C63692, AA696936, AA141449, T14994, T67384, D24498,  
C09870, C60992, AA728216, AA264936, D15741, AA392598, C19572, AA820594,  
AA951387, D34231, AA990717, C63656, C73751, AA799765, AA900454, AA941277,  
AA696002, AA949444, D48341, D46555, D22789, AA060773, AA539041, AA735216,  
AA696070, AA801874, AA803025, C70534, AA816470, D46840, AA540210, AA440951.  
30

SEQ ID NO: 282

- U75272, J04443, X59754, X04644, M18660, M23070, M23071, M88652, M18661, M18662,  
35 M23072, M18659, M23069, M25987, M25988, M18663, M23073, J04601, M20920, M26027,  
J00281, M59237, M73750, M25985, X59752, X59753, U14406, AF020510, M25989,  
AF020512, X59755, X53037, M59235, D00215, M88653, AF036953, M20788, AF036319,  
M25986, J05036, M84418, J00621, L08418, M19006, U90321, M57260, S49650, U19717,  
M11233, M63135, X05344, M84742, L02636, AF020513, U39199, U94791, U94795, L44118,  
40 AF020511, L44119, U71218, AF020509, U41166, L34360, U30251, X69193, U71217, L34361,  
U41165, AA335213, AA335152, AA334918, AA335113, AA335161, AA335108, H58586,  
AA307644, AA410697, AA074710, AA433879, AA057554, AA603295, H14144, R87854,  
AA133501, AA628927, AA460349, AA010204, AA633710, N48718, R87863, H61825,  
AA678843, R60721, W44894, R61717, AA120315, AI035456, AA118517, AA823912,  
45 W10274, AA562594, AA106277, AA027702, AA107284, AA106186, AA276409, AA920149,  
AA120316, AA510649, AA407150, AA290382, AA798891, AA139798, AA110217, W34201,

AA981720, AA682039, AA407563, AA275725, AA278042, AA163997, AA013851,  
AA116782, W71557, W54620, AA462760, AA930892, AA105179, AA797641, AA111685,  
AA289286, AA198713, W81886, AA105252, AA109146, AA073528, AA044485, W53737,  
AI049336, AA473147, AA473046, AA108763, AA403734, AA275990, AA207434, AA124846,  
5 AA105024, AA104671, AA044497, W12364, W66617, AA987105, AA407149, AA122468,  
~~AA511860, AA286094, AA116945, AA472229, AA108747, AA041924, AA920567,~~  
AA793583, AA606307, AA277989, AA116940, AA086540, AA105348, AA087372,  
AA062080, AA445409, AA178775, AA108425, AA803939, AA441102, AA246980,  
AA539362, AA817360, AA950510, AA949225, D70510, D70490, D70773, Z14725, D70266,  
10 C11719, D69774, M88822, D68834, D69602, M80169, C11732, AA848792, D69495, D70109,  
D70271, D70385, AA531934, D69996, AA519302, D69455, C69785, AA520727, D69484,  
D65766, R04900, H33785, C67195, AA900224.

15 SEQ ID NO: 283

M17517, Y00716, M65294, M65292, X56209, X56210, M65293, X64877, X86566, X86567,  
M12660, M29008, M29009, M29010, M29007, M74165, M96625, AC000077, M96624,  
Z81528, X98337, AI038982, AA022784, AA425660, AA703392, AA909379, W72541,  
20 AI004263, AA906235, AA777373, AA193302, W76166, N40593, AA022691, W88788,  
AA705945, N25878, AA235873, AA625237, H29609, AA573463, R29055, T55384, N71188,  
AA625190, T69649, N25887, AA953249, AA775652, R12676, T69578, N21984, AA236071,  
D57562, T54714, W86984, T54632, AA427785, H60551, W86811, W88909, N40585, T24039,  
F01572, T55812, N75352, T78003, AA669288, D58028, R08164, D57906, AA194256, R16414,  
25 D56851, D56970, C21121, AA872970, AA063356, H62542, R98133, AA081164, T56279,  
T67925, W88700, AA682307, AA571722, AA244607, AA276818, AA260552, AA208972,  
AA237589, AA212982, AA261571, AA212880, AA420109, AA238582, AA237849,  
AA239021, AA833130, AA174556, AI006101, AI009489, AA850451, C35042, D40259,  
AA550619, D34666.

30

SEQ ID NO: 284

D88532, AF028785, AF036256, D64047, S79169, U50413, M60651, D64048, D78486,  
35 M61906, D64045, M61746, M61745, U50414, X80907, D64046, U50412, Y13569, AF009255,  
X83378, AE000658, K02396, D28475, U85195, Z00044, AL021155, X82465, AJ002236,  
AP000009, D63325, AJ002235, AE001129, M91283, D83253, U39649, AA075494, N21330,  
R54049, AA018739, H52531, H82380, R85888, W73782, T53869, T64168, AA813369,  
T54819, R09741, W56349, W02204, T62075, AI026072, AA865771, AA042928, C20611,  
40 H71214, T55195, AA564203, H65051, R88702, R88698, AA908176, AA507448, T62131,  
T62083, AA858349, AA723324, T59111, W32364, AA357336, AA251725, R88705, T61839,  
T28286, R98411, AI014817, W87786, AI040701, AA846592, AA723344, R94971, H65604,  
T10766, R99231, AA833220, AA250367, AA249920, AA592066, AA146187, AA914951,  
C80981, AA617615, C78737, AA087285, AA124669, AA213231, AA242635, C80959,  
45 AA638927, AA107925, AA199106, AA268049, AA921268, AA116322, AA125232,  
AA408335, AA198281, AA066944, C80853, AA409335, AA691547, AA265444, AA241926,

AA691242, AA183017, AI021016, AA790938, AA921270, AA646703, AA553050, AA265416, W64949, AA589897, AA254757, AA125116, AA797171, C79362, AA107695, AA943105, N97745, AI008923, R05129, AI043853, AA964826, AI030758, C12414, L33655, R03952, AA965042, C73692, C24372, AA728341, AA841492, AA840909, AA841684, D36214.

5

---

SEQ ID NO: 285

D88532, S79169, Z49153, Z82243, N63056, H13935, T55806, R53696, R14926, AA425207,  
10 AA328348, R00775, AA499102, D33132, T00309, D41692, C54032, C36448, C32054,  
C29823, D34220, D34328, N81299, D73041, C84837, AA849064, T00207, T02429, T00021.

SEQ ID NO: 286

15

U47105, AF027974, AF006487, AF002995, U50986, Z66227, Z68161, Z81367, AF016656,  
AA207195, X96621, AA025994, W68346, AA215333, R91924, AA258838, W31729,  
AA340774, H50258, N72471, H46065, AI035956, AA542213, AA423626, W44192,  
AA914316, AA154504, AA822050, AA155013, AA261383, W65613, AA967254, AA538089,  
20 AA590442, AA207849, AA682083, AA727382, AA538126, AA794859, F14947, AF071386,  
C89989, AI034805, AA440688.

SEQ ID NO: 287

25

, U47105, U82671, AF027974, AF006487, AL021127, AE001011, AC002531, AA595924,  
AA970705, AA775541, AA303864, AA293041, AA587295, AA293433, H45313, AA436425,  
H25827, AA603051, AA449670, C00427, AA448943, AA283127, W77774, R47308,  
AA903857, AA868734, AA367163, AA863171, AA248935, N69273, AA592904, AI023105,  
30 AA029848, AA843311, AA039335, T56260, AA808705, AA233035, AA526128, AA258137,  
H18527, AA580114, AI032602, W95094, AA017384, AA052968, AA525766, AA548114,  
AI023410, F02503, T58982, N63264, H80259, AA232906, T28843, AA114931, AA011568,  
AA582936, AA837733, AA287367, AA191597, W94481, AA011589, T28457, AA895047,  
W91264, AA529720, AA529718, AA103124, W65613, AI006299, AA620208, AA438081,  
35 AA666705, AA272597, AA645092, AI046902, AA611705, AA254185, AA105189, AA230667,  
W76975, AA734359, AA008675, AA963701, AI009597, AA801365, AI012213, AA786960,  
AA123600.

40 SEQ ID NO: 288

X59417, X61972, D10755, AF056191, M55440, S58126, Z72533, M63641, Z35719, L11235,  
D82813, D82812, M22647, AC003026, AA029397, AA837580, W23501, AA488257,  
AA890064, AA632149, W53005, AA703270, AA446816, AA890484, W44361, AA316602,  
45 AA716489, W44618, W20013, AA843688, W52807, AA526876, W39027, W38864, W49827,  
AA315539, W60039, W40517, W03417, AA583625, W17240, W67897, W19376, AA126319,

- W32916, AA315426, AA772085, W46657, W31060, W37276, W94046, AA860293, AA044357, AI024374, W77914, W40204, AA523299, W24607, R52324, AA505371, AI034269, AA448491, AA844258, AI041663, N50564, H21413, W47241, AA807830, N29205, W00352, AA372064, T29583, AI014835, AA329485, AA716549, AA612828, T89588,
- 5 AA861938, AA045467, AA661664, W94047, AA044173, AA863108, T95448, AA488200, ~~N93220, AA570625, AA612774, AA716138, N50621, AI052107, AA916452, AA861538,~~  
AA301799, AI032881, AA722960, AA652222, AA946746, H06545, W05095, W53006, AA860602, AA973433, AI026047, AA843370, AA706945, AA229044, N50137, W44599, AA164391, AA353184, AA724169, AA989387, AI001105, AA691775, AA097862, AA498382,
- 10 AA397046, AA271066, W53306, AA268346, AA277305, AA000087, AA220352, W89739, AA871023, AA162010, W88224, W82532, AA575645, AA270450, W88232, AA242703, AA839488, W17811, W97567, AA671592, AA032731, W09846, AA221254, W41346, AA538441, W47982, AA717658, AA688641, AA268955, W65737, W33599, W33767, AA049737, W87250, AA616680, W59092, W90853, W35027, W83566, AA185007, C88831,
- 15 AA265206, AA270886, W83677, AA259567, AA606911, AA795148, W10775, W34508, AA218361, W87249, W83252, W16175, W14877, W43998, AA212735, AA645199, AA537233, AA606957, C80591, AA209125, AA990184, AA162620, AA060428, AA212696, AA530006, AA002827, AA223005, AA096799, W97578, AA874315, AA198183, AA220423, AA218100, AA914167, AA795267, AA800187, AA799492, H34953, AI013983, H35366,
- 20 AA685335, AA686270, AA875494, AA686088, AA686145, AI011257, AA891199, AA893051, AA891534, AA818104, AA875736, T14568, D40057, C91136, D48504, C68337, C68653, AA051948, T43303, C23342, AA856236, AI030734.
- 25 SEQ ID NO: 289
- M27319, X61432, X13933, M19381, D83350, M18355, U12475, X04271, K01944, M19311, U44758, D45887, K01945, M36167, U12022, X56888, M27844, D10366, M19312, M17069, L31642, M16659, X13817, X52956, M19380, X52955, D10363, X05117, J04046, U37573,
- 30 Y09863, AB003083, AB003081, AB003082, X64654, D10365, D10364, Y09880, U12435, J00931, Y16849, M36168, M13009, Y13578, U94728, X13835, Z97178, AF064552, U39066, AF045432, X56950, M59770, M99442, X59751, Y14765, J04729, L01430, U20294, U48696, X97558, X60737, L01432, X60738, X64653, X89890, L14071, X13907, U48697, Y16851, L00100, U20295, M34540, S68025, AF034988, M17068, U83402, X98404, M64089, U48242,
- 35 U48688, U13882, X97612, D10521, X14264, M80836, Y08373, M80831, AJ001092, X52242, X14265, J05116, U04381, U20292, U20297, U20293, M38380, U20296, M67472, Y00133, X52608, AA085590, AA972855, AA292469, W65332, R95997, AA070962, AA352515, AA039463, AA765750, F08797, AA070961, AA319858, H21692, AI025181, F08188, AA311828, AA307719, AA617697, H77337, AA056365, AA165448, AA081324, AA062559,
- 40 R70835, AA130210, AA151806, T55981, AA315518, AA626500, AA307905, D12146, D56375, AA984790, H60495, C04208, AA363570, AA054976, C05451, C01012, AA188391, Z20627, AA169549, AA337644, AA187557, AA296205, AA337447, F01073, W61315, AA083265, AA319707, AA111941, AA923140, C03719, AA039464, AA375959, AA151831, N33911, W39415, R57734, AA361370, AA099807, T75291, AA214472, AA121188,
- 45 AA319743, H17218, AA316337, AA318880, AA083768, N31129, D53196, W28491, AA349121, AA383516, AA101256, AA563836, D54237, AA345083, C05135, D55607,

D82230, D56108, AA330164, AA081812, D82174, D54621, R58725, AA344038, D55422, D58643, AA188404, F13050, AA294980, AA662790, AA165647, N75782, AA668657, D54176, AA385814, AA703708, AA415552, C88073, AA684027, AA711831, AA590586, AA656912, AA409434, AA616371, AA684346, AA611591, AA028347, AA272608, C85276, 5 AA407900, AA880156, AA028602, AA674705, C88521, AA058146, AA060730, AA538358, AA547523, AA399884, AA116810, AA000519, AA413971, AA646840, AA681659, AA245104, AA590867, W89787, AA499937, AA718454, AA645997, AA036006, AA608170, AA671896, W48389, AA645276, AA241991, AA798647, AA871164, AA608474, AA575623, AA871618, AA466257, AA794576, AA673197, AA637500, AA161802, AA245260, 10 AA755895, AA498530, AA465791, W75527, AA615781, AA271946, C80799, AA475171, W08912, AA397196, AA416209, AA413922, AA016646, AA693118, AA636900, AA003640, AA408646, AA036269, AA105846, AA624250, AA030062, AA032334, W90914, AA087002, AA071816, AA030407, AA597155, AA060724, AA242001, AA789949, AA789947, AA536983, AA253792, AA615118, AA518033, AA002896, AA770786, W89469, AA273913, 15 AA674151, AA238734, AA008724, AA023153, AA104496, AA105039, AA791596, W83513, AA103089, C88628, AA859997, H31806, AI011090, AA851101, F14583, AA991006, C88396, H34918, AA684870, T36983, AA660699, AA933275, C94461, C92685, AA933095, C93709, C91967, AA933356, C91342, AA933125, C90427, C89654, C94390, AA933350, AA933204, AA933184, AA933186, AA933185, AA933317, AA660727, AA933353, AA685047, 20 AA933347, AA933216, AA933241, T23115, C93839, AA933116, AA660906, AA933094, AT000091, W78687, C90863, AA686880, AA224655, AA660338, AA660367, AA753213, D15295, AA720465, AA933111, AA685917, AA803928, D24337, D15079, D41425, D40858, AA933122, AA687065, N65851, AA754402, AA933318, N97037, AA713132, T20450, R90459, AA754338, AA712683, N65115, N38419, AA713276, W49440, AA751750, 25 AA803172, AA686881, AA686535, C73257, AA750187, N25393, AA804151, AA825103, AA696613, N37441, Z26721, N38659, H77207, AA741921, W63459, AA933260, N28040, AA684544, AA264512, AA660937, C06757, N28049, C29359, AA754104, AA825102, AA754642, AA751583.

30

SEQ ID NO: 290

M27319, X61432, X13933, M19381, U12475, D83350, M18355, K01944, X04271, U44758, M19311, D45887, U12022, M36167, K01945, X56888, M27844, M19312, M17069, L31642, 35 D10366, X05117, X13817, M16659, M19380, X52956, X52955, J04046, X64654, D10365, U12435, D10363, AB003083, U94728, M13009, AB003081, Y09863, J00931, M36168, D10364, Y09880, AB003082, Y13578, L00100, X13835, X13907, M59770, X56950, M99442, J04729, M34540, S68025, M64089, M16475, Z95395, AF034988, X14264, L00099, Y14765, D10521, AF064552, M17068, L01432, U12505, U20294, U48689, X14265, U48242, U48688, 40 X59751, Y08373, L01430, U20296, U20293, U20297, X60737, L20507, X60738, U20291, U20292, M80836, U83402, X98404, J05116, U13882, L14071, X89890, X52242, X56511, M73711, M73712, M67472, U10150, X52608, K02944, U04381, U20295, M80831, Z12024, M88307, AA085590, AA972855, AA292469, W65332, R95997, AA070962, AA352515, AA039463, AA765750, F08797, AA070961, H21692, AI025181, F08188, AA617697, H77337, 45 R70835, AA130210, AA307719, T55981, AA311828, AA319858, D12146, D56375, H60495, AA056365, AA165448, AA081324, AA984790, AA062559, C04208, AA151806, AA363570,

- AA315518, AA626500, C05451, AA054976, C01012, AA307905, AA337644, AA296205, AA337447, F01073, W61315, AA319707, AA188391, AA039464, AA923140, AA169549, AA187557, AA151831, C03719, R57734, AA083265, AA563836, AA375959, AA316337, AA330164, W28491, N33911, AA318880, W39415, AA121188, AA361370, N75782,
- 5 AA214472, AA319743, H17218, AA165647, T75291, AA668657, AA083768, N31129, ~~D53196, AA349121, AA101256, AA383516, AA662790, AA328474, D54237, AA345083,~~  
D82174, D54176, AA384885, AA082880, AI001786, D82230, AA081812, D54621, AA111941, R58725, AA344038, D55422, AA169417, D58643, AA167154, AA188404, AA577290, AA703708, AA385814, C88073, AA684027, AA415552, AA409434, C85276, AA656912,
- 10 AA407900, AA674705, AA590586, AA711831, AA547523, AA616371, AA399884, AA611591, AA684346, AA116810, AA028347, AA646840, AA272608, AA413971, AA880156, AA028602, AA590867, AA718454, AA058146, AA060730, AA645997, C88521, AA538358, AA608170, AA645276, W48389, AA241991, AA000519, AA681659, AA245104, W89787, AA608474, AA794576, AA499937, AA161802, AA798647, AA671896, AA036006,
- 15 W75527, AA871164, C80799, AA397196, AA575623, AA245260, AA636900, AA466257, AA673197, AA871618, AA615118, AA637500, AA271946, AA755895, AA796872, AA615781, AA465791, AA498530, D19438, AA475171, AA408646, AA416209, AA413574, AA036269, AA597155, AA105846, AA030062, AA032334, W90914, AA087002, AA071816, AA220765, AA030407, AA624250, AA060724, AA242001, AA789949, AA789947,
- 20 AA253792, AA273913, AA238734, AA408862, W89469, AA518033, AA408836, AA674151, AA002896, AA770786, AA008724, AA794495, AA791596, AA104496, AA105039, AA239736, AA023153, C88628, AA859997, H31806, AI011090, AA851101, AA991006, F14583, T36983, C88396, H34918, AA684870, C90427, C91967, C92685, C94390, C89654, C93709, C91342, C94461, T23115, C93839, AA685047, C90863, AA224655, W78687,
- 25 AA660367, AA660338, AT000091, AA685917, AA686880, N96999, C29359, AA687065, C38862, AA720465, N61249, W66047, W63459, C49579, N65851, T44316, AA657305, C43376, N38696, C38711, N38419, AA686881, AA042238, AA686535, D15295, C73257, AA941526, AA264512, AA650766, C38542, Z26721, N65115, D24337, N38659, H31995, AA684544, D15079, D41425, D40858, H77207, D39557, D39547, N37441, AA824832,
- 30 Z17617, Z47664, AA686700, T46639, W43843, AA751471, AA525619, C57747, AI008629, AI008527, AA891246.

SEQ ID NO: 291

- 35 U75272, J04443, X59754, M23077, M18667, M18665, M23075, M23074, M18666, M23076, M18664, M18663, M23073, M88652, M25993, X04644, M73750, M59235, M19698, M20920, M59237, M23165, M26031, J00285, X59755, X59752, D45187, D38104, L08418, Y10928, M88653, M20788, J04601, X97399, J05036, M25990, M25989, M84422, D90905, M84424,
- 40 X69465, X59753, Z36158, X76053, Y11668, Z36157, M36482, U94791, AA906670, AA534285, AA334924, AA335157, T28355, AA335226, AA335225, AA335151, AA334923, AA335205, AA335206, T62158, T61932, AA335201, AA335145, AA335143, AA335110, AA334925, AA335896, AA679226, H78707, AA282121, F15763, R88501, R17479, W52843, AA410887, N20475, R61184, AA368515, R72703, AA326537, AA641710, AA402165,
- 45 R56461, W13531, AA172581, AA562772, AA739244, D40781, AA858922, AA892100, AA850427, AA097166, AA957918.



## SEQ ID NO: 292

- D89937, U06863, M91380, U06864, X64696, D90880, AE000337, AL008732, M30023,  
5 AF033384, M32756, X60598, M76370, M88479, AA545793, AA853932, AA853320, R57888,  
~~N86419, AA368106, AA852349, Z17837, H71176, AA694482, H56510, H86231, AI035782,~~  
AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, W71206, AI006564,  
AA985693, W71004, AA117341, AA272103, AA727322, AA672588, AA895542, AA288633,  
AA530779, AA561591, AA796608, AA163681, AA986542, AA242144, AA011746,  
10 AA968036, AA798873, W57000, AA561558, AA521529, AA511056, W18392, W30149,  
AA794167, AA003227, AA982579, W16213, AA118845, AA000673, C88553, AA270970,  
AA790713, AA518980, AA271934, AA815597, AA799007, AA727527, W91212, AA422990,  
AA272032, AA162257, AA066635, AA755726, AA388352, W78403, AA445170, AI036864,  
AI049079, AA474520, AA231301, W96942, AA798552, AA615270, AA122523, AA495069,  
15 D35571, D39195, T44187, D67318, D67156, C27163, T41576.

## SEQ ID NO: 293

- AC004770, Z68106, Z71260, Z85994, AL021939, Z75714, X54029, U53181, U21323,  
AE000348, U36840, U52516, AA716497, H98974, AA703998, AA044900, AA044689,  
AA031932, AA491463, AA599783, AA032050, AA186359, AA173933, AA600033, H97601,  
W63570, AA627069, W72045, AA548128, AA088246, W58303, AA669937, AA025046,  
W52070, AI041635, H97416, W52215, H97549, AA137262, W46845, W92629, AA026782,  
25 W76397, AA661793, W94840, AA128494, N79437, W46494, AA595373, W78218, N23437,  
W94418, W46918, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105,  
W42793, W96120, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651,  
R95788, N67716, N58122, T47507, AI025353, AA888923, R56693, W96121, AA788950,  
AA722567, W74255, AA987381, AA565505, W51762, N70652, AA188212, AA026781,  
30 R87166, AA501650, T33491, AA025047, W17326, R28503, R95744, AA903702, AA480682,  
R07697, AA664567, N73609, R39109, AA988438, R87165, AA666225, N44927, AA886647,  
AA599854, T62853, T90854, AA987862, AA853933, AA853321, R83373, C00827,  
AA822923, AA795295, AA267575, AI047069, N28086, AA958820, AA864074, R75316,  
AA066112, AA212095, AA596781, AA870117, AA646803, AA542310, AA032872,  
35 AA444992, AA096915, AA030466, AA408990, AA617457, AA413993, AA065944,  
AA624775, AA555747, AA611700, AA242296, AA177250, AA521523, W09897, , C94851,  
AA859885, D68452, C69362, AA054909, AI044075, AA063739, C89702, AA944417, C23818,  
AA893454, AA893469.

40

## SEQ ID NO: 294

- D89937, U06863, M91380, U06864, X68830, AE000337, D90880, X64696, AL008732,  
AL009031, M32756, AC002326, AA545793, AA853320, N86419, AA852349, Z17837,  
45 AA853932, R57888, AA429966, AA368106, N44297, AA434575, AA694482, AA770656,  
T49317, N45937, H56510, H59509, H86231, AI035782, AA030804, AA033212, AA049640,

AA734288, AA838966, AA734000, W71206, AA929708, AA939398, AI006564, W39990,  
W39917, AA985693, W71004, W35012, W45885, W65892, AA117341, AA014882,  
AA037985, AA036185, W70655, AA049849, AA170363, AA681172, AA286069, AA763976,  
AA543854, W33683, C82438, C83294, AA495069, Z34605, D35571, D39195, Z30794,  
5 Z35347, T42689, AA848947, AA900181, AA819765, AI010160, C22676, AA819768, T44187,  
~~C72525, AA859059, AA848693, AA945652, F14806, AA264114, AA946271, AI009795,~~  
AA201180, AI013811, N60116, AA990819, AA946195, AA945977, D67156, C22372,  
AA735165, D67318, AA819575, AA438989, AI011641, AI009627, AA848695, T41576,  
AA753416, AA848791.

10

SEQ ID NO: 295

AC004770, Z68106, Z85994, Z71260, X17403, AL021939, Z75714, AE000348, AC000392,  
15 U21323, U36840, L12104, AA716497, H98974, AA703998, AA044900, AA044689,  
AA031932, AA491463, AA032050, AA599783, AA186359, AA173933, AA600033, H97601,  
AA627069, W72045, W58303, AA548128, AA025046, AA088246, W63570, AA669937,  
H97416, W52215, AI041635, H97549, W52070, AA137262, W46845, W92629, AA026782,  
W76397, AA661793, W94840, AA128494, N79437, W46494, AA595373, W78218, N23437,  
20 W94418, W46918, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105,  
W42793, W96120, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651,  
N67716, N58122, T47507, AI025353, AA888923, W96121, AA788950, AA722567, W74255,  
R56693, AA987381, AA565505, W51762, N70652, R87166, R95788, AA501650, T33491,  
W17326, R28503, AA025047, R95744, AA903702, AA480682, R07697, AA026781,  
25 AA664567, N73609, R39109, AA988438, W47034, AA666225, AA886647, AA599854,  
T62853, R81056, T90854, AA987862, AA853933, AA853321, R83373, AA599400, C00827,  
AA795295, AA822923, AI048751, AI047069, AA833312, AA267575, AA028683, AA462435,  
AA189904, AA838967, W77258, AA492644, AA190010, W83140, AA624775, AA059792,  
AA958820, AA864074, AA265204, N28086, AA542310, AA432856, C94851, AA859885,  
30 D68452, AI009603, AA063739, AA925505, AA054909, C23818, AA893454, AA996570,  
AA438982, AA893469, AA997787.

SEQ ID NO: 296

35

AC004770, Z68106, AL021939, Z71260, Z85994, Z75714, U21323, AC002332, AB008430,  
AE000348, U36840, AA703998, AA716497, H98974, AA044900, AA491463, AA031932,  
AA599783, AA600033, AA173933, AA186359, H97601, AA627069, AA044689, W72045,  
AA548128, AA088246, AA669937, AI041635, H97549, AA032050, AA137262, W46845,  
40 W94840, H97416, AA661793, AA026782, W92629, N79437, W46494, W58303, AA595373,  
W78218, N23437, W94418, N34381, W76397, W46790, AA583657, AA599353, AA961557,  
W58194, N33105, W46918, W42793, W52215, W96120, H50538, W52141, W81572,  
AA593009, AA983246, AA025046, H97340, AA147651, W63570, N67716, N58122, T47507,  
AI025353, W96121, AA888923, AA788950, AA722567, W74255, AA987381, AA565505,  
45 W51762, N70652, R56693, R87166, T33491, AA025047, AA128494, W52070, R95744,  
AA903702, AA480682, AA664567, N73609, R39109, AA988438, AA666225, AA886647,

AA599854, T62853, T90854, AA987862, AA853933, AA853321, AA501650, W17326, R83373, AA599400, C00827, N94338, Z38867, N29399, T54372, H14477, AA719902, AA822923, AA795295, AA267575, AI047069, AA864074, N28086, AA542310, AA958820, C94851, AA859885, D68452, AA063739, AA054909, AA893454, AA893469.

5

---

SEQ ID NO: 297

Z68106, AC004770, AL021939, Z85994, Z75714, X17403, U21323, U36840, Z81140,  
10 AE000348, Z75546, Z54269, Z77663, U73826, Z78410, AF000266, AA716497, H98974,  
AA703998, AA044900, AA044689, AA031932, AA491463, AA032050, AA599783,  
AA186359, AA173933, AA600033, H97601, W63570, AA627069, W72045, AA025046,  
W58303, AA548128, AA088246, AA669937, W52215, H97416, W52070, AI041635, H97549,  
AA137262, W46845, W92629, AA026782, W76397, AA661793, AA128494, W94840,  
15 N79437, W46494, AA595373, W78218, N23437, W94418, W46918, N34381, W46790,  
AA583657, AA599353, AA961557, W58194, N33105, W42793, W96120, H50538, W52141,  
W81572, AA593009, AA983246, AA147651, H97340, R95788, N67716, N58122, T47507,  
AI025353, AA888923, W96121, AA722567, AA788950, W74255, AA565505, R56693,  
AA987381, W51762, N70652, R87166, AA026781, AA188212, T33491, W17326, AA501650,  
20 AA025047, AA903702, AA480682, R28503, R95744, R07697, AA988438, AA664567,  
N73609, R39109, AA666225, AA886647, AA599854, T62853, R87165, T90854, N44927,  
AA853933, AA853321, AA987862, R83373, C00827, AA822923, AA795295, AA734859,  
AI047069, AA215119, AA237684, AA267575, AA859885, C94851, D68452, AA063739,  
AA054909.

25

## SEQ ID NO: 298

L01042, U12965, L78442, AC002091, AC003695, Z84469, Z81479, Z81367, U61955,  
30 AA626005, AA831000, AA758593, N41155, N32581, AA431387, H61959, R12838,  
AA470066, N59643, AA694484, W86025, AI041095, W19922, R14606, AI016922, AI002718,  
C81060, AA563173, AA152706, AA666594, W15042, AI036790, AA841581, AA701823,  
C65022, D35680, AA841659, AA841976, C48782, AA841736, H32842, AA801157, C67633,  
AA754415, AA606197, C56870, AI035162, C52552, AA998683, D33223, N43590, N69627,  
35 AA879364, T13937, AA990970, D39194, C94099, AA433194, T01165, C72289, C61178,  
C51688, AA892062, C25009, C94010, C24896, H33580, D49144, D28016, AA819745,  
AA892203, AI026247, D75211.

## 40 SEQ ID NO: 299

U50311, Z99127, Z82090, AF025451, X15853, U50071, X70810, AA287535, W03007,  
AA252318, AA813176, C75334, D57732, R79599, AA328247, R79598, D57952, D25592,  
R63235, R80014, R63275, AA047337, R63288, AA745498, N32931, AA296386, R93964,  
45 N76780, T36336.

SEQ ID NO: 300

L01042, U12965, L08472, AC004496, AA001194, AA594960, AA742241, AA401664,  
AA400306, AA923815, AA810266, AA961883, AI002718, AA766247, AA620608, AA761978,  
5 AA318561, AA831353, AA830332, AA789926, AA153292, AA162566, AA189920,  
~~AA874294, AA855391, AA175181, W34970, AA990174, AA710982, W08075, AA174619,~~  
AA689968, W75898, AA733271, AA155251, AA170158, AA709655, AA734797, AA267186,  
C90589, C90931, C48782, C65022, D35680, AI043591, AT000322, C72289, C61178,  
AA819745, AA892203, T01165, H33580, D28016, D37698, C51688, AA892062, D33223,  
10 AI045841, C84799, C52552,

SEQ ID NO: 301

, Z92543, M94286, Z15118, X79345, AL008989, AC003700, X51471, X83994, Z82073,  
15 Z78022, Z82090, Z32683, L34876, AC004679, U23182, L48177, X14804, AA287535,  
AA252318, C75334, W03007, AA813176, R63275, R63288, AA745498, AA047337, D57732,  
AA328247, R79599, D57952, R80014, R79598, D25592, R63235, AA804882, N32931,  
AA774765, AA678473, AA653298, AA283267, N23096, AA723004, AA838762, N23088,  
AA499027, AA183288, AA941813, AA697077, N97751, AA949229, C84216, N20702,  
20 C91523, R65454, AA550463, AA958050, F15230, C42134, AA850568, AI035083, AA859433,  
D34651, AA736240,

SEQ ID NO: 302

25 , AP000015, AE001115, AJ224476, AB011483, Z92543, Z66498, AL008989, X79345, X69126,  
Z47356, AL021940, X51471, Z82090, AC002519, X51802, Z81114, U14101, L48177, U14102,  
Z78022, AC003700, U90093, AC004679, X14804, K02803, AE000665, L34876, C75334,  
AA287535, AA252318, W03007, AA813176, D57732, R63275, R63288, AA328247, R79599,  
30 AA745498, AA047337, R63235, R80014, R79598, D57952, D25592, AA804882, N32931,  
N62031, AI017596, AA286861, AA723004, AA147600, N27870, AA204787, AA766278,  
AA037614, AI050927, R44996, AA283267, N53090, W19951, R38077, N23096, H06680,  
AA350808, AA806909, R01137, N23088, AA286751, AA346316, AA969786, AI017579,  
T48651, AA027226, W67240, AA318128, AA701647, AA577740, AA773071, AA838762,  
35 T63624, AA948339, AA296386, AA142481, AA499027, Z36309, AA064091, AA117297,  
AA512137, AA388064, AA267691, AA833044, AA387982, AA869126, AA163118,  
AA174989, AA941813, AA697077, N97751, AA949229, C91523, N20702, C22914,  
AA850568, AI035083, AA924780, AA114404, AA550463, AA696948, AA951599, T36336,  
AA958050, AA263717, AA891660, AA901213, AA924291, AA941895, AA946463,  
40 AA736240, F15230.

SEQ ID NO: 303

45 L01042, Z54865, X59711, Z50071, M77245, U73458, Z71347, Z50735, X91803, J04096,  
X99537, U01158, U05294, X86470, AC003972, AA309347, AA722684, AA224465, W19444,

- AA468581, AA176346, R13076, R98448, AA045309, AA669942, AA516399, AA311187,  
AA232313, AA218947, H77580, AA587675, AA534810, AA463631, AA602680, AA025677,  
H90532, AA813080, AA582946, AA147286, Z39687, AA687231, AA481499, AA348055,  
AA223944, AA493565, AA443177, W93645, W42707, R98449, R15638, T79861, AA855130,  
5 AA760706, AA025676, N32138, R96927, T33266, AA910590, AA642174, AA476895,  
~~AA159578, AA127278, AA037036, T89285, AI002362, AA1714970, AA178846, AA040539,~~  
W96486, AA143770, F19435, R65637, AA638668, AA050845, AA450612, AA237427,  
AA103887, AA466432, AA122463, AA098100, AA674951, AA499697, AA271280,  
AA815547, AA672068, AA432539, AA110731, W08834, W15672, AA738668, AA617191,  
10 AA212974, AA930798, AA116717, W48275, AA004000, W08053, AA790851, AA623308,  
AA611070, AA606809, AA473063, AA285443, AA266142, AA080212, W08178, AA048341,  
AA009176, AA656426, AA655834, AA000140, AA445331, AA273596, AA116742,  
AA109939, AA445284, AA466501, AA498742, AA275978, AA614911, AA108635,  
AA265513, AA145957, AA105792, AA105743, AA063836, AA000715, W41246, W34655,  
15 AA518871, AA445423, AA403873, AA221387, AA116578, AA254772, AA821463,  
AA710561, AA500563, AA137789, AA034735, AA030888, AA734319, AA718467,  
AA435019, AA276170, AA273541, AA207749, AA124101, AA120318, AA086663,  
AA727731, W53320, W48551, W17604, W13222, AA499120, AA250660, AA125066,  
AA657239, AA709861, AA052106, AA118988, AA170286, AA163903, AA516863,  
20 AA670545, AA691283, AI037272, AI050482, AI045428, AA996720, AI030004, H32511,  
C63380, AA900476, AI014091, F15107, D35735, AI013879, H35232, AA685207, AA754479,  
AA685746, AI009720, AA894046, AA998190, AA818593, AA891532, AA960722, AI014069,  
AA955102, AA979976, AI030621, AA848774, AA698615, AA946050, AA108294, AA925224,  
AA955622, AA849328, AI008147, AA899774, H35402, AA952351, AA924715, AI013403.  
25

SEQ ID NO: 304

- U07563, AC000118, Z49866, Z98950, Z70280, AC004217, AC003108, AC002041, AD000813,  
30 X76498, U73640, U14573, AC002301, AC004231, AF045555, AC002303, AB002353,  
AC002988, AC002316, D38081, AC002107, AC004678, AC002039, AC003086, Z95115,  
AC002477, AC004699, Z97054, AC004056, AL021154, AL022322, AL021546, AP000045,  
Z85996, AF001551, AC002045, Z98048, AC004656, Z94056, AC002314, AL020997,  
AC002553, AC004491, Z97181, L78810, AC004703, AF038458, Z82215, U62293, U78027,  
35 Z84480, AL008710, AC004126, AF064858, Z92546, U14574, Z82206, AC002565, AC002404,  
AC002476, Z95152, U95742, AC003663, AC004687, AC003072, Z97184, Z75407, Z82194,  
AF017104, AP000031, AC002554, Z84814, AC002040, Z82203, AP000011, AL022165,  
AL021878, AC005247, AC004777, U91323, AL031005, AC000120, Z98036, AC003038,  
Z95113, AF001549, AC004447, Z84469, AC004263, AC005152, AC002551, Z85994, X54486,  
40 M30688, AC002094, AC000003, AL008725, AC004076, AC004003, U32576, N72305,  
N40630, H26274, H25696, AA904211, H07953, T74524, W03007, AA297666, AA468505,  
AA084609, AA833896, AA833875, AA614254, AA228368, N73060, AA621381, AA053463,  
AA483606, AA133332, AA568204, AA570740, AA425924, AA715173, H71678, AA715075,  
AA491527, AA468371, AA230025, AA536040, AA303054, AA612727, AA613761,  
45 AA856961, AA584655, AA467760, AA483075, AA719845, AA297670, AA302661,  
AA664126, AA574286, F13749, AA535216, AA602906, AA233509, AA622801, T54783,

- H90114, AA603413, AA224889, C15363, AA587215, AA515728, AA489766, AA492298, T67090, AA228269, AA482928, AA491767, AA493464, AA130647, C75403, C75526, F19373, AA584482, AI050076, AA757426, AA133013, AA224815, AI038304, AA128899, AA573067, AA721645, AA640826, T70299, H13120, T46960, AI003086, AA550989, AA224816,
- 5 AA070614, AA526099, AA654874, AA564582, N57781, AA513846, N23504, AA209415, ~~AA224966, AA846923, H82679, AA847499, AA668587, AA523203, AA523204, AA583394,~~  
AA626567, AA132765, AI051656, AA823826, W51648, AA501297, C88111, W64166, AA501217, AA517646, AA517461, W64884, AA415875, AA863851, AA516629, AA516955, C87922, C86532, W62449, C88193, W61986, W62377, W71517, C87864, AA474026,
- 10 W77222, AA501262, AA501128, C80822, AI042687, C87438, AA544076, AA518813, AA939867, AA563185, AA711962, AA764103, AA864092, AA727828, AA096630, AA067033, W45941, AA114713, AA709758, C87581, AA920903, AA175601, AA881230, AA939912, AA086548, AA832680, AA175695, C87512, AA881598, AI006950, C79702, AA473085, AA915562, W10055, AA435247, AI046782, AA397202, AA792326, AA821875,
- 15 AA260746, AA462161, AA237411, W40894, AA571579, AA036275, AA636491, C78473, AA671494, W12161, AA770935, AA727156, AI042727, AA259770, AA896910, C78144, AA511247, AA004162, AA833114, AI036356, AA273651, AA166007, AA462759, AA117299, AA561474, AA422857, AA170588, AA799246, AI006432, AA184613, AA517834, AA611534, AI044039, AA550283, H39328, H39389, W06387, W06750, H39426, AF064463, Z69957,
- 20 H39351, AA923995, AA107123, AI044651, H34360, AA943478, AA900983, AA850322, AA439604, AI009786, AI009724, C07070, AA943496, AA964894, AI013331, AA997321, AA851016, AA851041, AA925284, AA819889, AI028846, C06795, C91523, AI007545, AA892670, AI013373, AA957648, AA140615, N38007, H36130, C44202, AI030013, H35257, AA893817, H39330, AA957649, AI010426, AA944794, AA963620, AI010756, AA891772,
- 25 AA800253, AA893373, T02678, AA874831, AA926052, AA945031, AA540237, AA541099, AA892461, AA924449, AI029973, N97960, AA849983, AA925965, AA439515, AA538568, C25826, AA800915, AA849887, AA891273, AA923898, AA948884, AI008183, AI043956, AA056877, AA441346, AA201570, AA202864, AA874861, AA924761, AA997451, AA979044, H35341, AA264062, AA859834, AA201518, AA942692, AA950570, AA943694,
- 30 AI009859, AA964515, AA978912.

SEQ ID NO: 305

- 35 L01042, Z54865, M77245, X59711, Z50071, X91803, J04096, Z50735, AC003986, X99537, AC003972, X86470, Z71347, U39442, U01158, AC004031, U73458, U05294, H28333, AA309347, H24941, AA855130, R15638, AA602680, R07992, AA622931, AA760706, AA622923, AA127278, AA693321, R98449, R96927, N32138, R13076, AA476895, AA040539, AA037036, W80852, H88068, H15767, T89285, T79861, AA910590, W72947,
- 40 AA642174, AA284563, AA159578, AA143770, N92984, AI002362, H21882, R65637, AA760948, AA178846, W96486, F19435, AA659736, AA459412, AA400812, W19444, H25772, AA934980, AA722684, AA669942, AA555111, AA443177, AA176346, W88820, H77580, T83333, AA714970, W74413, N93537, R98448, AI042461, AA516399, AA468581, AA311187, AA223944, AA218947, AA535537, T33266, AA587675, AA582946, AA463631,
- 45 AA232313, AA025677, H87647, H41246, AA857537, AA813080, AA600709, AA578079, AA534810, AA478301, AA181085, AA045309, H90532, H59071, AA348055, AA147286,

- H43876, Z39687, AA729334, AA687231, AA224465, W93645, W42707, H28128, H24740, H21824, AA481499, AA025676, AA962094, AA493565, AA638668, AA050845, AA710561, AA266142, AA212974, AA116742, W08178, AA086663, W08053, AA718467, AA611070, AA499697, AA435019, AA275978, AA432539, AA000715, W53320, W08834, AA271280, 5 AA499120, AA450612, AA145957, AA738668, AA116578, AA103887, AA080212, ~~AA000140, W15672, AA500563, AA466501, AA815547, AA122463, AA250660, AA137789,~~ AA048341, AA030888, W41246, AA614911, AA285443, AA254772, AA237427, AA034735, AA930798, AA466432, AA656426, AA672068, AA105792, AA727731, AA110731, AA445331, AA403873, AA276170, AA207749, AA120318, W48275, W48551, W17604, 10 AA655834, AA498742, AA445423, AA445284, AA105743, AA273541, W34655, W13222, AA821463, AA674951, AA617191, AA606809, AA518871, AA265513, AA116717, AA109939, AA108635, AA063836, AA790851, AA623308, AA473063, AA734319, AA098100, AA009176, AA004000, AA273596, AA124101, AA221387, AI045428, AA996720, AI030004, H32511, AA751623, F15107, D35735, C63380, AA900476, AI013879, AI014091, 15 AA685746, H35232, AA685207, AA754479, AA946050, AI030621, AA818593, C42349, AA108294, C39933, AA955622, AA438632, AA848774, AA849328, C39540, AA952351, AI014069, C33475, AA894046, AI013403, AA697896, D33424, C23821, C69685, H35402, AA698615, AA891532, AI009720, AA998190, AI008147, AA955102, C40594, AA925224, AA924715, C40993, AA438416, AA697088, AA979976, AA899774.

20

SEQ ID NO: 306

- 25 L01042, Z54865, Z50071, U12965, M77245, Z84469, X59711, L78442, L08472, U39442, U73458, J04096, AC003972, U01158, U05294, Z50735, Z81367, X99537, AC003986, AC004496, X91803, Z71347, U61955, AA001194, AA831000, H28333, AA907185, AA493142, N48262, AA227914, N69341, N48269, AA836225, AA401439, AA309347, AA887267, AA638668, AA789926, AA050845, AA030888, AA473063, AA139335, 30 AA672068, AA734319, AA403873, AA276170, AA184339, AA237427, AA120318, AA063836, W13222, AA518871, AA718467, AA445284, AA105743, AA221387, AA207749, AA189920, AA606809, AA000715, W41246, W17604, AA821463, AA656426, AA655834, AA617191, AA086663, AA098100, AA498742, AA466432, AA445331, AA254772, AA212974, AA175181, AA266142, W48275, AA674951, AA445423, AA265513, AA109939, 35 W34655, AA874294, AA162566, AA271280, AA116717, AA108635, W08178, AA004000, AA790851, AA727731, AA623308, AA499697, AA450612, AA273541, AA273596, AA153292, AA145957, AA124101, AA614911, W48551, W15672, AA930798, AA710561, AA285443, AA275978, AA122463, AA105792, AA034735, AA009176, W08834, AA738668, AA499120, AA466501, AA435019, AA048341, AA116742, W53320, W34970, AA103887, 40 AA080212, AA000140, W08053, AA855391, AA815547, AA611070, AA500563, AA432539, AA250660, AA137789, AA110731, AA116578, AI045428, AA996720, AI030004, H32511, AA751623, AI013879, D35735, C65022, C63380, AA841581, F15107, C48782, AA841736, AA900476, C90931, D35680, AA841976, AA841659, AI014091, C90589, AA685207, AI043591, AA801157, AA685746, AT000322, AA754415, AI035162, AA754479, H35232.

45

## SEQ ID NO: 307

S51858, U22009, AF013273, M63489, AC003984, AF067609, Z72771, AL023534, S77094, X94357, AC002992, Y00762, AF016412, X02508, Y14081, U47924, AC002465, AA278473, 5 AA669484, AA233482, AA344552, AA082364, AA937305, F00220, AA344335, AA333224, H22822, W81677, R13215, AA491413, Z42799, AA906359, AA101483, R82656, R33858, AA183221, AA657048, AA038212, AA462517, AA544152, C88760, AA178691, R75435, AA989839, AA796850, AA815887, D64326, C64754, AA799599, D34505, AA850502, D72055, D73344, T00102, T02095, AA901359, C38841, R86355, T00999, AA728587, C53849, 10 AA585995, C37871, D65352, D33998.

## SEQ ID NO: 308

15 S51858, AF025464, AF024502, Z70310, U60205, M60873, AC002531, AF016447, U93162, AL023841, AB009498, AA937305, AA279145, AA669484, AA781806, AA992011, AA234362, AA224978, AA225019, AA278473, AA459901, AA437381, AA478049, R66346, AA436920, AA344552, F00220, AA344335, D82103, H93619, AA460384, T06072, R93147, AA524527, W39240, AA679163, AA991228, AA938240, AA044782, AI022397, AI041834, 20 AA575865, W30863, D44701, H95004, AA280788, AA996103, AA814140, AA489052, AA508696, AA559009, AA262090, AA033520, AA724929, R53806, AA307914, N25127, AA351987, AA916757, N20582, AA034194, AA676465, AA280782, AA228658, C88781, AA038212, AA183221, AA265678, AA822645, AA645553, AA462517, AA123385, AA386732, AA161963, AA109891, C13575, D36631, T14807, AA819110, C46898, 25 AA141090, C90842, AA899333, AA875010, AA495436, AA699065, C42828, AA891889.

## SEQ ID NO: 309

30 AZ75895, Z69917, AC004768, M12922, Z39710, H09245, R39824, F03749, T52127, AA325912, AA493590, AA411065, H83531, H80456, AA747004, AA437325, AA583390, T07307, T50392, Z28508, T95864, AA315999, T95858, T64635, AA672225, AA738911, AI019267, AA066186, AA185213, AA072847, AA072651, AA024238, W64263, AA415475, D19329, AA072855, AA245717, AA036227, W66967, W99134, W61778, AA475421, 35 AA438233, AA244792, AA822118, W62965, AA000795, AA839391, AA467723, AA097649, AA616290, AA752374, AA893758, T14820, D41474, AA818727, T14914, AA899904.

## SEQ ID NO: 310

40 AF060181, AF012126, Y13472, AF035374, S53307, S53301, D63790, Z98949, AF039713, M30114, AF033029, U02512, D00863, AL024485, L13855, Y10259, M69019, M13655, M57505, U15304, AL021816, D89168, M11969, X03636, M57504, U02513, AA329832, AI028699, T48184, AA884702, AA863120, AA091936, R72495, AA486001, W38657, 45 H91730, AA681096, AA793734, AA981374, AA675674, AA690226, AA981061, AA710968, AA880265, AA437673, AA437687, AA591866, AA472881, AA088934, AA795731,



AA073408, AA792627, C42637, C92164, L47042.

SEQ ID NO: 311

5

AP000015, U58749, U40953, AC002533, X69121, AF043699, AC003016, U50542, U09983,  
AC002350, Z84488, AF047660, AC002066, M55913, D87000, Z74696, D12614, Z79997,  
AC004003, X67715, M16441, Z93393, Z15026, D10727, X01393, X02911, S44898, U52112,  
D00102, AP000049, Z81465, AF036382, L78833, Z68879, Z46792, AC004551, AI003834,  
10 AI017914, AA483199, AA328991, AA452055, AA704670, AA482705, AA088464, AA626101,  
N63395, AA447870, AA035627, N48929, AA873000, D45305, N51078, AA847320, R40789,  
N69574, AA062843, AA766857, H91645, N63780, N66935, T06566, AA361436, AA313016,  
R92628, N67652, AA984114, AA714632, AA847717, H75539, R96142, T83983, AA237418,  
AA119294, AA125550, AA137476, AA413638, AA619999, AA204281, AA691025,  
15 AA823757, AA414319, AA268043, AA210338, AA537203, AA666619, AA536698, AI020243,  
W41084, AA619116, AA717327, AA816053, AA174774, AA615978, AA915439, AA117069,  
AA153256, AA270506, AA154670, AA863974, AA415736, AA168244, AA066545,  
AA940122, D77581, AA821456, AA289951, AA624442, AA900071, AA946064, AA275544,  
D33641, C36319, AA892894, D32930, C52688, AA817046, AA395150, AA899974,  
20 AA851527, AA950955, D34300, AA651466, D32420, AA859574, AA892571, AA945159,  
AA956036, AA859484, AA957864, AI009162, AI008809, AI013512, AA957926, AI028892,  
AA958015, AI043936, AA818778, D23247, AA900825, AA945198, AA697456, AA998854,  
AA799466, AA891156, AA956815, AA957706, AA893278, AA697455, AA818901,  
AA800853, AA851789, AA957936, AI009753, AI010105, AI012418, AA893449, C52353,  
25 AI046079, C83343, C82487, AI010496, W06499, AA697451, AI030918, AI012013,  
AA944691, AI030612.

SEQ ID NO: 312

30

AF014890, AF014898, AF014888, X62996, AF014892, AF014891, AF014884, M10546,  
AF014889, AF014901, AF014882, J01415, V00662, X59268, AF014894, S75896, S75895,  
X93334, S73804, AF014895, D55239, D51981, D57451, D54971, AI028628, AA532797,  
D57566, AA508758, AA470370, D52491, F16554, F15674, F17184, F16407, AI015676,  
35 F18264, AA879019, F18249, AA464752, AA197149, AA783018, AA192604, D53377,  
AA534145, C04537, C05625, F22582, F15897, AA983610, AI024380, AA428850, AA876525,  
AA725126, C05532, AA512996, F17169, AA181000, AA897022, AA492256, D56728, F15522,  
AA595503, D58015, AA889892, AA514885, C05652, AA400809, AA453608, AA566006,  
AA580161, AA401126, F15604, F17980, AA595757, AA758834, AI031660, F16474, D29370,  
40 F16548, F16570, F17230, F16436, F18029, AA176484, AA216167, F16448, AA194421,  
U78174, F21967, AA214075, AA564658, AA576110, AA582805, AA551520, AI026683,  
AA886497, F16452, F17705, F15947, F18756, F16090, F17920, AA464751, F16744,  
AA523492, F16080, F15668, AA224754, AA579806, AA877931, D54713, F15788, AA554414,  
F16359, D29555, F22570, D56542, F16615, F15961, F15603, AA692320, AI035418.

45

## SEQ ID NO: 313

M92377, M12922, AC002550, T95864, T64635, H80456, T50392, T95858, T07307,  
AA948672, F10380, AA694319, AA833739, AA977526, AA455988, R44944, R43657,  
5 AA909207, T53866, R41594, AA672225, AA140149, AA497636, AA059664, AA432664,  
T14022, AA395920, N96191, R64959, N96178, N96220, N96016, T21803, T04517, A1044980,  
AA859624, AA392283, Z18075, T00507, AI008263, AA605761, C31573, M80149, D27641,  
Z37608, AA605525, C19110, AA186306, L33601, H31391.

10

## SEQ ID NO: 314

S74340, AP000043, U82672, AP000002, U09422, M85225, D90905, AB009475, AL021332,  
Y11780, U08812, X90939, U49939, L15633, U07562, Z94801, AA659728, AA883923,  
15 D59334, AA918493, R39993, R73900, D53031, AA059363, AA166749, R43798, T10593,  
AA166776, T10567, W21931, T79096, R18629, W52470, N92193, AA829137, AA262975,  
AA461317, R31825, AA237325, AA408229, R75227, AA408228, AA967595, AA087123,  
W10172, AA111364, AA060895, AA963816, AA944459, AT000281, AA946310, AA264476,  
AA263328, AA893257, AA818058, AA946183, AA752837, AI010886.

20

## SEQ ID NO: 315

U91319, L27090, Z98598, M97514, L22987, L28176, L22988, L22989, X74671, L33769,  
25 AJ002236, M33862, X59370, L27105, AA909943, AI018164, AA876117, AA761118,  
AA885370, AA830743, AA811540, AA732383, Z19362, AA994568, F05898, R33142,  
AA815140, Z45678, AA393239, H70916, R42609, W74150, W46431, W74157, AA811026,  
H12391, C16126, AA291279, H70913, AA553046, AA277240, AA390010, AA289068,  
AA066355, AA259657, AA880335, AA063857, AA203797, C77689, AI050209, AI026596,  
30 C52662, D33733, C93027, C57696, H33415, AA696819, C70316, AA858626, AA859618,  
AA113580, C62833, AI009444, AI050106, AA520381, C23420, AA875045, AA955156,  
N37856.

## 35 SEQ ID NO: 316

U56860, U00035, Z69251, AC003686, AC004774, AC002457, AC001527, L81869, Z82253,  
AL022101, AC002485, U39648, AC003085, Z74043, AL022104, X85105, Z70177, AC004227,  
AF002197, AC004478, Z71263, AC000378, Z82212, X67744, AA809784, AA412105,  
40 AA836191, AA827109, AA804427, AA814890, AA768944, AA354395, AA829438,  
AA828744, AA205333, AA782931, AA250965, AA251165, AA151555, AA256169,  
AA789094, T79588, AA426431, H79702, AA029448, R21432, X71647, AA512108,  
AA189682, AA739022, R04648, AA417407, AA851163, R03957, R05178, R03268, R03852,  
C25737, D33134, R03421, R03256, C34891, D37751, D72823, AA956678, AI007798, T39037,  
45 AA294340, AA898159, C61838, D69030, AA850706, D65552, C62086, AA851036, C52237,  
AA925983, C32833, AA294788, AI030007, AA998684, AI011286, AA800269, AI009727,

T21529, AA858451.

SEQ ID NO: 317

5

~~AC005270, X92100, X86090, AL009173, Z34288, X88851, U39676, AE000973, Z49348,~~  
AA319373, AA191069, T70737, AA084237, AA399386, AA793396, AA734139, AA049284,  
AA492788, AA717972, AA795229, AA176068, AA064579, AA497777, AA500252, Z26048,  
F19760, AA966157, D48474, D48185, AI043542, R04515, D70544, AA114331, AA720084,  
10 C94126, D34450, AA191793, C09440, C65405, AA851621, C65618, AI045939, C84167,  
D67435, D37078, D40007, Z17800, U44260, AA660209, C91194, AA908010.

SEQ ID NO: 318

15

U77706, U31961, L07835, L11172, AC003001, AC001047, AE000962, U32722, D63790,  
Z82976, Z95126, AA582177, AA779722, AA233016, AA228050, H27414, AA232702,  
H90472, C79289, C79397, AA175404, AA739332, AA185918, AA549313, AA175414,  
AA422545, AA240758, AA168536, AA221415, AA410095, AA237814, AA172709,  
20 AA168456, AA266103, AA277270, C87523, AI047796, AA177380, AA267624, AA266985,  
AA170289, AA178542, AA217473, W18297, AA637914, AA996627, AA454427, AI044624,  
AA022362, AA042785, AA042284, AA549973.

25 SEQ ID NO: 319

AC005191, AC000022, AC004161, U67949, D32002, U48251, X80030, T34938, AA348735,  
T11294, AA496625, H11830, F11832, AA037681, T65508, AA011609, H71333, H15581,  
AA496503, C15755, D81192, D81591, AA234424, T83538, AA461155, AA025279, Z36730,  
30 D80564, AA234423, N26354, W00688, AA692746, U37159, C39409, C91297, AA799289,  
D68368, AI029040, AI007668, C08934, AI010541, AA850556, AA392473, H31325, D34571,  
AI043892, AA996460, AA946179.

35 SEQ ID NO: 320

AC004142, Z70750, AC004766, Z78416, Y13473, U80452, AF000299, U88173, AA702479,  
AA702790, AA825557, AI038962, AA505372, AI051720, AA505567, AA864908, AA505703,  
AA610492, AA505302, AI015179, AA704244, AA037682, AA664420, AA505301, AA147170,  
40 AA814618, AA321331, Z40775, T35671, H15525, AA011610, AA633691, H11751, AI025182,  
H11079, T65428, AA705344, F09480, AA811013, AA091593, AA938978, AA089924,  
AA722822, W32680, AI050875, H01026, W67301, AA890360, AA678583, R49664,  
AA815086, C16979, AA507270, AA558990, N70810, W80778, AA883720, AA790780,  
AA275189, AA600642, AA265030, AA259672, AA855284, AA866847, AA792675, W57074,  
45 AA096992, W81949, W75269, AA789988, AA259316, AA790623, AI021000, W57110,  
AA990198, AA067249, AA726260, AA537135, AA798563, AA755019, AA030169,

AA116306, C23464, AI012480, C23465, AA201498, AA802376, C91292, AA246870; C90701, AA963602, AA950424, AA956932.

5 SEQ ID NO: 321

---

AE000658, U85195, AB009521, Z70288, M12922, T52127, AA325912, T95858, T64635, T07307, H80456, T95864, T50392, AA833739, AA977526, AA948672, T53866, AA029491, F10380, AA132333, AA455988, R41594, R43657, AA132348, R44944, AA909207,  
10 AA694319, D31584, AA672225, AI019267, AA738911, AA467723, AA066186, C19110, Z37608, AA186306, AA392283, AA605525, C70333.

SEQ ID NO: 322

15 Z83836, M59371, Z69917, AC004768, Z75895, Z39710, H09245, R39824, F03749, AA493590, AA747004, AA411065, H83531, AA315999, AA437325, Z28508, AA583390, AA426377, AA252549, N76310, H78530, AA768319, AA822118, W66967, W62965, AA616290, AA839391, D19329, AA036227, AA185213, AA072651, AA072847, AA024238, AA244792,  
20 AA671995, AA415475, AA438233, W64263, AA097649, AA245717, AA000795, AA475421, AA072855, W99134, W61778, AA184000, W33766, AA185206, C78177, AA798172, AA863961, W81788, W53793, W62573, AA230836, AA466643, C78205, AA822043, AA086975, AA990223, AA655533, AI049173, AA790279, W97047, AA980600, W29472, AA752374, D41474, AA899904, C26152, T14820, AA818727, T14914, AA893758, T22262,  
25 AA817000, N65632, AA816371, Z29789, AA394995, AA816959, T46743, AA941188, AA950659, AA849737.

SEQ ID NO: 323

30 Y13472, AF012126, AF060181, AF035374, D63790, S53307, S53301, AL021713, Z98949, AF039713, M30114, D89168, U02512, M57504, AF060205, M69019, AF033029, D00863, U55369, M13655, AL021816, M57505, M11969, AL024485, Z82189, L13855, X03636, U02513, AA329832, T48184, AI028699, AA884702, AA091936, W38657, AA863120,  
35 R72495, AA486001, H91730, AA681096, AA793734, AA981374, AA675674, AA690226, AA981061, AA880265, AA437687, AA472881, AA437673, AA591866, AA792627, AA088934, AA073408, AA795731, C42637, C62662, L47042, AA787536, D22851, D15739, AA532235, AI026532, T43691, H98444, R29968, C27630.

40

SEQ ID NO: 324

AF060181, Y13472, AF012126, L28807, Z49809, Z98601, AF043695, X07891, AC001052, AC004445, AC004114, Y07564, AC004356, M22875, AC003945, AC001648, M22876,  
45 X05643, Z69666, AF009615, M38643, D31712, U35852, M22874, Z48444, AC005198, AA993582, AA282776, AI051311, AA767826, D11944, AA860937, AA629081, AA872477,

C14749, AA872945, AA251581, AA863063, AA452155, AA505638, AA251580, AA283078, C14507, C14328, C14354, AA663837, AA034499, AA135989, AA115537, N79268, N71855, D80504, AA370561, AA746706, D81220, AA370562, AA843321, W37572, R93033, H97032, N38781, AA514700, N57805, N30488, N62550, H69847, T07543, W69578, H71919, N77224, 5 H44790, AA635156, AA704735, AA267676, AA161918, AA960263, AA798296, AI047555, AA254301, AA497406, AA497405, AA210440, AA051239, AA117254, AA157972, AA821741, AA851515, AA926013, AA950193, AA695692, C24325, AA394737, C93891, AA848449, C64092, AA943258, AA956886, AA851240, AA799762, AI007952, AA644744, AA882675, C61851, T36898, AA957795, AA818311, T38995, T36455, AA997643, AA945866, 10 T37716, T36576, AA957887.

SEQ ID NO: 325

15 AC004593, Z74023, U38804, U01157, AE000786, L23503, U40800, L15310, U01104, U01156, U10037, H54643, AA583408, T81855, AA284449, H64839, AA620679, AA308833, N41694, N88993, AA476931, R23668, AA464631, AA429911, Z42049, AA429731, AA758195, C18973, AA426370, AA882202, AA220159, W75183, AA444418, AA106025, AA966943, AA271060, AA415968, W81742, AA717639, W17519, AA396328, AA619027, AA260833, 20 AA718691, AA553021, AI037054, AA866815, AI036477, AA660619, Z97872, T43612, N99315, AA550217, AA892049, AA997375, AA901400, AA944313, D68989.

SEQ ID NO: 326

25 AC004593, Z74023, U38804, U01157, AE000786, L23503, U40800, L15310, U01104, U01156, U10037, H54643, AA583408, T81855, AA284449, H64839, AA620679, AA308833, N41694, N88993, AA476931, R23668, AA464631, AA429911, Z42049, AA429731, AA758195, C18973, AA426370, AA882202, AA220159, W75183, AA444418, AA106025, AA966943, 30 AA271060, AA415968, W81742, AA717639, W17519, AA396328, AA619027, AA260833, AA718691, AA553021, AI037054, AA866815, AI036477, AA660619, Z97872, D68989, N99315, AA550217, AA892049, AA901400, AA997375, T43612, AA944313.

35 SEQ ID NO: 327

AF060181, Y13472, AF012126, AF035374, S53307, D63790, S53301, Z98949, U15304, M57504, M69019, U02513, M30114, AF033029, U02512, M13655, AL024485, Y10259, D89168, L13855, M11969, M57505, AL021816, X03636, AA329832, T48184, AA486001, 40 AA091936, R72495, AA863120, AA793734, AA675674, AA681096, AA690226, AA981374, AA710968, AA880265, AA437673, AA437687, AA472881, AA088934, AA073408, C92164, L47042.

45 SEQ ID NO: 328

Y13472, AF012126, AF060181, L28807, Z49809, AF043695, X07891, AC001052, Z98601, M22874, AC004445, AC005198, AC004114, U35852, Z48444, AC001648, Y07564, AC003945, M22876, X05643, D31712, Z69666, AF009615, M22875, AC004356, M38643, AA282776, AA993582, AI051311, AA767826, AA860937, AA251581, D11944, AA629081, 5 AA872477, C14749, AA872945, AA663837, AA863063, AA034499, AA452155, AA505638, N79268, AA251580, AA283078, C14507, C14528, C14554, AA115537, AA135989, N71855, D80504, D81220, AA746706, AA370561, AA370562, AA452383, N57805, N62550, AA843321, W37572, H97032, N30488, N38781, R93033, AA514700, AA091256, AA635156, AA704735, H69847, AI038776, T07543, T41024, N77224, AA267676, AA798296, AI047555, 10 AA161918, AA960263, AA254301, AA210440, AA497405, AA497406, AA117254, AA051239, AA137972, AA821741, AA926013, AA851515, AA950193, AA695692, C93891, AA394737, AA957795, C61851, AA799762, AA943258, AA417542, AA644744, AA957887, AA848449, AA818311, AA997643, AA956886, AA882675, C64092, AI007952, AA851240.

15

SEQ ID NO: 329

M90309, M96256, M90820, D82876, M95123, U62545, AE000387, U83435, AC003982, U28379, Z81081, AC004309, M29192, U64849, U23170, U58751, Z79999, AA662136, 20 AA626635, AA507452, AA805078, AI039677, AA745880, AA722415, AA133371, D56262, AA514235, AA425201, AA946647, AA830458, AA083192, AA207200, AA316768, AA180767, N63329, AA878427, AA934449, AA133184, AA402087, AA937256, D52197, AA687770, AA365011, AA083191, AA731077, AA196815, AA211880, AA305565, AA099456

25

SEQ ID NO: 330

U06863, D89937, M91380, U06864, L10127, U86881, D80004, U60315, D90880, AE000337, 30 X64696, M32756, M26950, AF033384, U23172, AC002326, AL008732, M30023, AL009031 AA545793, Z17837, AA853320, AA852349, AA853932, N86419, R57888, AA429966, AA044047, AA092160, AA346981, N85021, AA248133, AA368106, W22634, AA694482, AA770656, H86231, T78778, W03714, AA258169, AA565536, H56510, AA769400, AI035782, AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, AA929708, 35 AA939398, W71206, W39990, W39917, AI006564, W35012, AA985693, AA967387, W71004, AA143948, AA117341, AA170363, AA681172, W45885, W33683, AA036185, W77037, AA037985, AA259405, AA423660, AA289830, W70655, W65892, AA763976, AA563018, AA049849, AA286069, AA764370, AA014882, AA543854, C82438, C83294, AA495069, AA752205, L38123, D35571, D39195

40

SEQ ID NO: 333

U06863, D89937, M91380, U06864, L10127, D80004, U86881, U60315, X64696, D90880, AE000337, AL008732, M30023, AC002326, AL009031, AF033384, M32756, M26950 45 AA545793, AA853932, AA853320, N86419, AA852349, Z17837, R57888, AA429966,

AA368106, AA694482, AA770656, H56510, H86231, AA769400, AA258169

AI035782, AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, W71206,  
AA929708, AI006564, AA939398, AA985693, AA967387, W71004, AA143948, AA162315,  
5 AA562776, AA563168, AA874667, AA117341, AA855746, C82438, C83294, AA495069,  
D39195, L38123, D35571, KM252/T3,

---

SEQ ID NO.334

10 D89937, U06863, M91380, U06864, AE000337, D90880, X64696, AC002326, AL008732,  
AL009031, M32756, U23172, D89937, AA545793, Z17837, AA853320, AA852349, N86419,  
R57888, AA429966, AA044047, AA092160, AA346981, AA853932, N85021, AA248133,  
AA368106, W22634, AA694482, AA770656, H86231, T78778, W03714, AA565536, H56510,  
15 AA545793

SEQ ID NO.335

20 Z68106, AC004770, Z75714, Z85994, AL021939, Z71260, U36840, Z82090, AJ224445,  
AE000348, D83479, U21323, Z68106, AA716497, H98974, AA703998, AA044900,  
AA044689, AA031932, AA491463, AA599783, AA032050, AA186359, AA173933,  
AA600033, H97601, W63570, AA627069, W72045, AA025046, AA548128, AA088246,  
W58303, AA669937, W52070, H97416, AI041635, W52215, H97549, AA137262, W46845,  
25 W92629, AA128494, AA026782, W76397, AA661793, W94840, N79437, W46494,  
AA595373, W78218, N23437, W94418, W46918, N34381, W46790, AA583657, AA599353,  
AA961557, W58194, N33105, W42793, W96120, H50538, W52141, W81572, AA593009,  
AA983246, H97340, AA147651, R95788, N67716, N58122, T47507, AI025353, AA888923,  
W96121, AA722567, AA788950, W74255, AA188212, R56693, AA987381, AA565505,  
30 W51762, N70652, R87166, AA026781, T33491, W17326, AA501650, AA025047, R95744,  
AA903702, AA480682, R28503, AA664567, N73609, R39109, R07697, R87165, AA988438,  
N44927, AA666225, AA886647, AA599854, T62853, T90854, AA987862, AA853933,  
AA853321, R83373, C00827, AA716497.

35

SEQ ID NO.336

AF012072, Z34918, AC004016, AC004400, L06314, AC004476, U59229, U23179, AF025311,  
AF012759, U95072, D88752, AF012072, W28058, N42333, AA678083, AA632361, W87293,  
40 AA700969, AA580406, AA428666, AA604561, W01955, AA574373, AA678193, W28058.

SEQ ID NO.337

45 AF012072, U04282, U93694, AJ229042, AF051934, AL010167, AL008970, AF005680,  
X56564, Z81472, Z48717, AF005697, AF014948, AC004414, AF005683, AF005681, U04280,

AF005674, Z83838, AF039057, Z74071, Z74072, AF007943, AF005679, AF005670, Z48432,  
AF005669, AF005673, AF005694, AF005675, AF005682, L12722, U62943, L05514,  
AF029791, L04132, Z99281, U41624, AC004016, AF005672, Z72831, AC005212, AC002465,  
U65590, Z75714, U29157, AC002541, U88173, AB008681, AE001040, AF005671, AF005678,  
5 AF005684, AF005685, AC004238, AL021180, Z72518, U88166, AF012072, AA425182,  
N34551, AA457547, AA903329, AI017135, AA937078, H89366, N34541, AA490854, H99291,  
N75058, AA457747, D59286, D62357, H89553, D62145, AA526320, N66282, N29478,  
AA609043, AI014367, N92469, W79550, AA665666, R50684, N25822, C21162, AA468635,  
N44557, N95594, AA147928, AA491894, AA960937, AA528395, AA083916, AA777212,  
10 W25684, W69189, AA013334, AA918317, H06933, AI000693, AA705169, W88709, R42683,  
W69134, AA306914, AI017605, AA425182.

## SEQ ID NO.338

15 M90820, M90309, M96256, M95123, D82876, U62545, AC003982, U64849, U23170, U97592,  
AC004099, U58751, M29192, M90820, D56262, AA662136, AA316768, AA180767, D52197,  
AA196815, AA083191, AA305565, AA099456, AA211880, AA425201, AA374550, D54751,  
AA904934, AA301380, H16000, AA304018, AA330777, AA661783, C03243, AA083192,  
20 N88739, AA830458, AA662099, AA091762, AA910956, AA626635, AA358517, AA507452,  
T23842, AI039677, AA722415, AA805078, AA745880, AA133184, AA514235, AA133371,  
AA934449, AA207200, AA652387, AA946647, AA687770, AA365011, N63329, AA757083,  
AA709130, H42504, AA856607, AI015577, AA287349, H80862, AA701928, AA815104,  
N29511, W46860, AA929000, AA937256, T78553, F11745, R88938, H52017, AA456142,  
25 T87832, AA431044, AA189120, T28999, AA007693, AA215302, AA436121, AA446826,  
R52744, AA040668, R20592, R60482, H18710, Z45180, T95232, R79671, T33317, H43493,  
AA219658, AA430392, AA631802, AI040805, T09413, T33924, H05237, AA768012, D56262.

## 30 SEQ ID NO.339

M90309, M96256, M90820, D82876, M95123, U62545, AE000387, U83435, Z81081, U28379,  
AC004309, Z79999, M90309, AA662136, AA626635, AA507452, AA805078, AI039677,  
AA745880, AA722415, AA133371, AA514235, AA425201, AA946647, AA830458,  
35 AA083192, AA207200, N63329, AA878427, AA934449, AA133184, AA402087, AA937256,  
AA687770, AA365011, AA731077, AA515865, AA910956, AA180767, W67861, AA301380,  
D56262, AA182893, AA330777, AA358517, AA661783, W67804, AA652387, AA316768,  
AA523222, AA541535, AA305565, D57347, AA662099, AA904934, H16000, AA211880,  
AA083191, AA196815, D52197, AA099456, AA091762, AA886161, AA876833, AA928813,  
40 AA512845, AA374550, D54751, AA304018, AA809606, AA836660, T23842, C03243,  
AA709130, AI023221, AA287349, N29511, AI015577, H80862, AA701928, AA815104,  
W46860, AA856607, AA929000, W89194, AA446792, T61548, AA913564, AA828597,  
AA662136.

45

## SEQ ID NO.340



X59417, X61972, D10755, AF056191, Z72533, S58126, M55440, M63641, M22647,  
AC003026, L11235, D82813, Z68870, D82812, X59417, AA029397, AA837580, W23501,  
AA890064, AA488257, AA632149, AA703270, AA890484, W53005, AA716489, AA446816,  
W44361, AA316602, AA843688, W20013, W52807, W44618, AA526876, W39027, W49827,  
5 W60039, AA315539, W38864, W40517, AA583625, W17240, W67897, W03417, AA126319,  
AA772085, W32916, AA315426, W19376, W46657, AA860293, W31060, W94046, W37276,  
AI024374, W77914, AA523299, W24607, AA044357, W40204, AA505371, AI034269,  
AA448491, AA844258, AI041663, N50564, AA807830, R52324, W47241, N29205, W00352,  
H21413, AI014835, AA716549, AA861938, AA612828, T29583, AA045467, AA329485,  
10 AA661664, W94047, AA372064, T89588, AA044173, AA863108, AA488200, N93220,  
AA570625, AA612774, AA716138, T95448, AI052107, AA916452, AA861538, AI032881,  
AA722960, AA652222, AA946746, W53006, AA860602, N50621, H06545, AA973433,  
AA164391, AA301799, AI026047, AA843370, AA706945, AA229044, N50137, W44599,  
W05095, AA724169, AA989387, AA353184, AA916455, AA029397.

15

## SEQ ID NO.341

X59417, X61972, D10755, AF056191, Z81009, Z73362, Z68870, AC003026, X59417, ,  
20 AA837580, AA890484, AA703270, AA632149, AA843688, AA716489, AA890064, AI024374,  
AA523299, AA505371, AA448491, AI041663, AA772085, AI034269, N50564, AA807830,  
AA844258, AA860293, AI014835, AA045467, AA861938, AA661664, AA612828, AA044173,  
AA863108, AA488200, AA570625, AA716138, AI052107, AA861538, AA722960, W94047,  
25 AA612774, AI032881, W53006, AA946746, AA843370, AA229044, AI026047, N50137,  
AA973433, W44599, AA716549, AA860602, AA916452, W77914, AA894692, AA989387,  
AA706945, AA724169, AA860981, AA693427, AA916455, AA652222, W49827, N67814,  
AA126319, AA026136, N89757, AA693799, AI001105, AA782177, AA035351, W60039,  
W67694, W47125, AI026764, N93152, H97527, AA757013, N91597, H21372, AA643395,  
30 W51997, AA630959, N93220, AA164392, AA128178, AA047319, N94909, W42460, W35352,  
N91371, AA903675, N99937, AA158100, W46622, N72079, AA029397, W45714, AA720990,  
AA483762, H06487, W72155, W37789, AA903194, AA872269, AA005388, R52084, T92259,  
AA837580.

35

## SEQ ID NO.342

Z68106, Z75714, Z85994, U21323, U36840, AE000348, AF045646, Z68106, AA491463,  
AA599783, AA031932, AA600033, AA703998, AA044900, AA669937, AA548128, H98974,  
40 AA173933, AI041635, H97549, AA627069, AA186359, AA716497, H97601, AA137262,  
W72045, AA026782, W46845, AA088246, AA661793, W94840, N79437, W46494,  
AA595373, W78218, N23437, W92629, W94418, N34381, W46790, AA583657, AA599353,  
AA961557, W58194, N33105, AA044689, W42793, W96120, H97416, H50538, W52141,  
W81572, AA593009, AA983246, H97340, AA147651, N67716, T47507, AI025353, N58122,  
45 W96121, AA888923, AA032050, AA722567, AA788950, W74255, AA565505, AA987381,  
W51762, N70652, R87166, T33491, AA903702, AA480682, W46918, AA025047, R95744,

W58303, AA988438, AA664567, N73609, AA599854, R39109, AA666225, AA886647, AA853933, AA853321, W76397, T90854, R56693, AA987862, AA599400, T62853, C00827, R83373, N94338, Z38867, W52215, T54372, N29399, W63570, AA025046, H14477, AA719902, N68056, AA022992, R96871, R56849, AA491463.

5

SEQ ID NO.350

AE000046, AE000035, U35013, AE000036, AE000004, AC003080, AP000034, U09871, Z70691, Z54140, U26310, AF029304, U93196, Z75746, Z75893, AE000054, U49830, 10 AC003676, AC003043, AL021469, AF064860, Z36753, AF043105, M34482, AE000002, U63312, AF016414, AB010068, AF036444, AE001117, X82684, Z66497, U97003, L08380, AL008971, U80028, U10414, M81689, Z11115, L09750, AE000550, AC002456, Z68120, Z66514, U97190, AC004644, Z54236, AC002341, AB015477, M29154, U40423, U41748, M81688, X56851, AB008264, AL021480, AC000076, Z37964, U10402, Z48007, AA527268, 15 AA780210, AA431793, N28891, W74607, AA004205, N25768, AA643184, AA630321, AA216596, AA854206, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA114952, AA490320, W94384, AA424324, H49322, W68201, AA678487, AA214609, W04711, AA486288, AA165561, N73273, W02793, N67842, AA864358, AI034146, W30934, 20 AA953621, W15581, W68202, H49323, AA693353, AA648400, AA971954, H97860, AA205308, H44141, AA766793, N20849, AA804853, AA485269, AI004353, AA433927, N62700, AA825778, AA114829, W31657, AA216543, AA007422, H10401, AA552090, AA579359, T97120, R82009, H01442, H69533, AA025477, AA779558, AA318373, AA430583, D78892, AA702752, W67753, R22948, T35994, AA329745, AA774128, T97005, 25 R82061, R81522, AA996354, AA775160, H48804, R34243, Z28536, W90371, H44062, AA025396, Z19475, H48810, AA513115, R62712, AA287628, C02732, AA777768, AA628646, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA560406, AA822900, AA079914, AA561771, AA254405, AA097088, AA822893, AA444663, AA200448, AA623299, AA863792, AA183321, D18314, AA472424, AA396152, 30 AA960524, AA790566, AA560556, AA116991, AA690917, AA690993, AA170629, AA270487, AA688806, W36441, W71565, AA756480, AA690916, AA288151, AA414642, AA718602, AA162299, AA538093, AA619931, AA718699, AA268163, AA980553, AA545942, AA624507, AA855805, AA849531, AA848917, AA957315, AI009528, C06826, D39911, AA605573, C32716, D22377, Z18210, C23790, AA899962, AA802377, AA438451, 35 C84183, C90994, C92834, C93176, C89903, AA051845, T00553, AA943491, AA945230, AA946005, AA900113, AA161699, AI012441, C62969, W63171, AI010024, C25562, AA942692, AA997400, AA676066, AA850803, AA996844, AI044720, W06489, AI045785, AA964776, C36068, C54452, C54804, C94217, AA440498, H33868, AA850398, AA890788, AA990991, N55612, C90271, AA898115, D73182, AA202444, AA964855, AA712502, 40 AA925965, AA550648, AA800209, T02433, AA925071, AA842873, AA957108, AA996923, AI037825, W63192, AI030173, AA924397, AA997195, N96377.

SEQ ID NO.351

45

AP000034, X63673, AC003669, AP000017, AL022224, U26310, AA527268, N28891,

- AA780210, AA431793, W74607, AA004205, AA643184, N25768, AA214609, AA811726, AA630321, AA216596, AA854206, AA971954, AI038928, AA535623, AA114952, H49322, W45570, N30763, AA001737, AI027706, AA603729, W68201, W94384, H44141, AA610141, AA216543, AA148861, W90372, W31657, AA490320, AA025477, W30934, AA424324, 5 T97120, W92013, AA486288, H97575, W04711, AA678487, W02793, AA864358, AA953621, AA165561, AI034146, N73273, D78892, N67842, AA433927, AA648400, AA693353, AA825778, AA205308, AA804853, T35994, R82009, AI004353, AA485269, AA329745, AA766793, H49323, W15581, AA114829, W68202, H97860, N20849, AA579359, AA552090, AA007422, AA318373, AA430583, W67753, AA775160, AA702752, H10401, H01442, 10 W90371, AA779558, R22948, Z19475, H69533, AA996354, R82061, AA025396, H44062, C02732, R34243, H48810, R62712, R81522, AA774128, Z28536, N62700, H48804, T97005, AA007407, AA287628, AA628646, AA777768, AA466843, AA608178, AA200267, AA175464, AA611918, AA396402, AA560406, AA097088, AA822900, AA254405, AA561771, AA079914, AA472424, AA444663, AA855805, W71565, AA268163, AA623299, 15 AA162299, AA718602, AA718699, AA560556, AA545942, AA624507, AA688806, AA270487, AA849531, AA848917, AA957315, AI009528, D39911, D22377, AA712502, W06489.
- 20 SEQ ID NO.354
- AE000046, AP000034, AE000004, AC003080, U35013, AE000035, AE000036, Z70691, U09871, U26310, Z75746, Z75893, U93196, AE000002, X87102, U49830, Z68751, AB005234, AC003676, AF043105, Z36753, AE000054, AF064860, AL021469, M34482, AC004644, 25 U40423, AE000550, AL008971, AC004564, AC002341, AB010068, Z37964, M81689, U97003, Z68120, Z48007, AB008264, AC002066, AB015477, AF016414, U10402, L09750, U80028, U00040, U41748, AL021480, AE001117, Z11115, X82684, Z66497, AF036444, U10414, X56851, AB012248, M29154, M81688, U97190, Z54236, AA527268, AA780210, AA431793, W74607, AA004205, AA643184, N25768, AA630321, AA854206, AA216596, 30 N28891, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA490320, AA424324, W94384, AA678487, W04711, H49322, AA486288, AA165561, W68201, W02793, N73273, N67842, AA864358, AA214609, AI034146, AA114952, AA953621, W68202, W15581, W30934, H49323, AA693353, AA648400, H97860, AA205308, AA766793, N20849, 35 AA804853, H44141, AA485269, AI004353, AA433927, N62700, AA971954, AA825778, AA114829, AA007422, H10401, AA552090, AA579359, H01442, R82009, W31657, H69533, AA216543, AA779558, AA318373, AA430583, AA702752, W67753, T97120, R22948, AA329745, AA774128, T97005, AA025477, R82061, R81522, AA996354, AA775160, H48804, D78892, R34243, T35994, Z28536, AA025396, H44062, H48810, AA513115, 40 AA287628, W90371, C02732, AA777768, Z19475, AA628646, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA097088, AA561771, AA822893, AA623299, AA444663, AA164111, AA200448, AA960524, AA396152, AA863792, D18314, AA790566, AA183321, AA560556, AA116991, AA472424, AA162299, AA619931, AA538093, AA718602, 45 AA980553, AA545942, AA624507, AA170629, AA688806, AA690917, AA690993, AA756480, W36441, AA270487, AA855805, W71565, AA268163, AA414642, AA690916,

AA718699, AA288151, AA849531, AA848917, AA957315, AI009528, C32716, C23790, AA605573, Z18210, D22377, D39911, AA899962, AA945230, C92834, C93176, C90994, AA698574, AA438451, C89903, AA943491, C84183, AA051845.

5

## SEQ ID NO.352

M60558, AB006706, AP000021, D90716, AC005142, D87872, AE000181, W31813, W03446, AA318031, AA011499, H69988, AA329851, AA206741, AA045969, AA330339, AA148860, H48619, H48612, AA045835, AA348162, AA336381, AA337762, AA134434, AA917730, D52988, C17881, AA094788, AA489309, AA354856, Z19998, D56210, AA527916, AA011500, AA182437, AA320171, T53273, AA155839, H22733, AA809519, H44710, AA085882, AA358978, AA366689, AA188322, W45747, W97332, AA896228, AA789939, AA727854, AA059823, AA140441, AA032863, AA760526, AA726236, AA791055, AA666667, AA096662, AA799210, AA166173, AA881031, AA726992, W07991, AA122715, AA117586, AA472537, AA388943, AA691105, AA432531, AA667224, AA500919, AA667205, AA562830, AA894335, Z81222, X93228, AA676087, AA944617, AA202573, C93776, AA583103, AA965140, AA951463, C65935, AA191869, AA842460, C08849, M89450, D73949, D74916, D75318, T01841, N21886, Z81288, AA451560, N69725, AI035168, M75876, AA651575, AA451561, T01140.

## SEQ ID NO.359

AF027390, M55673, U28686, U70857, U91322, AC004525, U67212, AF067216, U95982, AF067611, Z73905, U13070, AA002081, AA113127, AA831044, AA002245, AA805579, AA767554, W91985, AA430583, AA740770, W91964, AA768675, AA433927, N68306, AA765872, AA004288, AA113840, AA705271, R62689, R36350, AA085427, AA307902, H00486, AA356897, W37253, AA313689, AA001622, AA054406, AA305641, N70479, AA306222, AA345397, T78803, AA325775, AA143762, T72106, AA076252, T55643, AA092407, AA192462, AA177031, AA679532, H13332, H17712, H16930, AA305815, AA004369, AA015827, AA705484, F11875, AA811088, AA001908, AA057226, AA790191, AA105116, AA790153, AI006318, AA472674, AI046894, AA983116, AA414094, AA589062, AA619440, AA238985, AA939578, AA672120, AA152861, AA547630, AA027542, AI021034, AA139951, D76727, AA501231, AA869414, W09603, AA687033, AA686313, AA736059, C93720, AA990781, AA686756, AA820697, AA140709, AA538976, AA263759, C91205, H74821, AA897979, AA660309, C93846, T20905, C93938, D27073, Z37604, AA926472, C94646, AA660648, AA952542, X73736, AA470322, D66007, C54318.

40

## SEQ ID NO.353

AE000036, AC003080, U35013, AE000004, AE000035, AE000046, AP000034, Z70691, U09871, U26310, Z75746, U93196, Z75893, M34482, AE000002, AL021469, Z36753, AF043105, Y10196, AC003676, Z75529, AF064860, M12582, D10685, AE000054, U49830, X54116, X82684, Z84814, AB010068, U10414, U97003, M81688, M81689, Z54236, Z48007,

- L09750, M86526, Z66514, U10402, AF016414, U97190, Z68120, AE000550, AL008971, M29154, X56851, U40423, D86251, Z83233, U41748, U80028, AC004644, AC002341, AL021480, AC000076, AF036444, Z66497, Z11115, AB008264, AE001117, Z37964, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321, AA854206, 5 AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, W90372, AA603729, N28891, AA610141, W92013, AA148861, H97575, AA535623, AA490320, W94384, W68201, W04711, H49322, AA424324, AA486288, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA214609, W30934, AA953621, AI034146, W68202, W15581, AA693353, H49323, AA205308, AA648400, H97860, H44141, N20849, 10 AA433927, AA766793, AA485269, AI004353, AA804853, AA971954, AA825778, N62700, AA114829, AA114952, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533, AA702752, AA318373, AA430583, AA779558, W67753, R22948, AA329745, AA774128, T97005, R82061, R81522, AA996354, AA775160, W31657, H48804, AA216543, R34243, AA025477, Z28536, H48810, AA513115, H44062, T97120, AA025396, AA287628, 15 C02732, AA777768, AA628646, D78892, T35994, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA561771, AA822900, AA200448, AA623299, AA444663, AA254405, AA097088, AA560556, D18314, AA183321, AA396152, AA863792, AA472424, AA960524, AA116991, AA790566, AA624507, AA690917, AA690993, AA170629, AA688806, AA980553, 20 AA855805, W36441, W71565, AA268163, AA270487, AA690916, AA414642, AA718602, AA162299, AA288151, AA538093, AA756480, AA619931, AA718699, AA545942, AA849531, AA848917, AA957315, AI009528, D22377, AA605573, C23790, D39911, Z18210, C32716, C84183, C90994, AA051845, AA438451, C92834, AA942491, AA899962, C93176, AA945230, C89903.

25

## SEQ ID NO.355

- AE000035, U35013, AE000004, AC003080, AE000046, AP000034, AE000036, Z70691, 30 U09871, Z75893, Z75746, U93196, AL021469, AL009029, AC003676, U49830, AF064860, AC003043, Y10196, AE000054, AE000002, M34482, Z36753, AC002287, AF043105, Z68751, M81689, U80028, U41748, M81688, AC000076, AE001117, AB008264, Z11115, AF036444, Z37964, X82684, Z66497, U40423, AC004135, AE000550, U97003, Z98753, Z66514, U10402, AC004644, Z68120, AL008971, AC002341, AF016414, Z54236, U80843, L09750, AL021480, 35 U10414, AC002066, U97190, Z48007, AC003998, M29154, X56851, AA527268, AA780210, AA431793, W74607, AA004205, N25768, AA630321, AA643184, AA854206, AA216596, AI038928, W45570, AA811726, AA001737, N28891, AI027706, N30763, W90372, AA603729, AA610141, AA535623, W92013, AA148861, H97575, AA490320, W94384, AA424324, AA678487, W68201, W04711, H49322, AA486288, N73273, W02793, AA165561, 40 AA214609, N67842, AA864358, W30934, AI034146, AA953621, W68202, W15581, AA693353, H49323, AA205308, AA648400, H97860, AA114952, AA433927, H44141, N20849, AA766793, AA485269, AA971954, AI004353, AA804853, AA825778, N62700, AA114829, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533, AA318373, AA430583, AA779558, AA702752, AA329745, W67753, W31657, R22948, 45 AA774128, AA216543, AA996354, T97005, R82061, R81522, AA025477, AA775160, T97120, H48804, R34243, Z28536, AA025396, H48810, AA513115, H44062, D78892,

- T35994, AA287628, C02732, AA777768, AA628646, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA097088, AA561771, AA200448, AA183321, AA960524, AA396152, D18314, AA472424, AA116991, AA560556, AA790566, AA170629, AA162299, 5 AA270487, AA855805, AA414642, W71565, AA268163, AA690916, AA444811, AA718699, AA718602, AA980553, AA688806, AA545942, AA619931, AA624507, AA756480, AA690917, AA690993, AA183584, AA277326, AA286405, AA863529, AA880395, AA983023, AA048938, AA759545, W36441, AA208995, AA274576, AA623299, AA798564, AA547224, AA168386, AA198582, AA444663, AA106584, AA958885, AA840456, 10 AA546863, AA896177, AA162089, AA245968, AA416281, AA474849, AA155555, AA759392, AA849531, AA848917, AA957315, AI009528, AA605573, C23790, C32716, C90994, AA899962, AA943491, C84183, C89903, AA051845, C92834, C93176, AA945230, AA957108, W63192, AA925965, C94217, C54452, C54804, W63171, D39911, AA996923, AA924397, AA900113, AA161607, AI012441, AI045785, AA942692, D73182, C36068, 15 W06489, AA161699, AA550648, N96377, D22377, AA712502, AA898115, AA842873, C25562, AA997400, AA202444, T02433.

## SEQ ID NO.356

- 20 AF051882, AF037335, AL020992, M99416, X14520, D87664, AC002531, X53815, AE000006, AC000077, M76611, D00814, L23176, AL021768, AC004457, X03674, AF068865, L02537, AL010259, X90947, AA642981, AA458937, AA236101, AA889703, T57200, AA653968, W49620, AA593002, AA725435, AA027201, AA084808, AA903402, T55953, AA235819, 25 AA084809, H62064, AA027200, W48794, H61158, AA399478, AA293409, AA676879, AA121077, H45963, AA459151, AA454941, F12881, T75179, AA151754, H17823, T90533, R69560, H03207, AA854346, AA083102, AA433953, AA453877, AA453793, F02019, D52307, AA292162, AA984316, H61258, AA812708, W92032, AA600088, T96124, AA127633, AA845619, H61254, AI023077, W31457, AA452311, N59208, N47490, 30 AA292062, N24598, R42888, AA843088, AA594908, AA977276, N53479, Z38999, T32381, W92031, AA446638, T03367, D55029, AA761261, AA856358, AA929411, AA509752, AA003370, AA637345, AA718711, AA212242, AA184206, AA606789, W11129, AA052492, AA089155, AA656802, AA867237, AA277010, W70784, AA277035, W53759, AA964553, AA963531, C22771, AA978729, T24128.

35

## SEQ ID NO.357

- 40 AF051882, AF037335, AL021768, X14520, X53815, X03674, L02537, AC004457, AL010259, D00814, M76611, M99416, AC000077, D87664, AA236101, AA642981, AA084808, T55953, W48794, H62064, AA458937, T57200, AA027200, AA676879, AA653968, AA889703, AA121077, W49620, AA593002, H45963, AA725435, AA459151, AA027201, AA903402, H61158, AA235819, AA084809, T75179, F12881, AA293409, AA151754, D52307, AA127633, F02019, N47490, AA452311, AA761261, AA977276, W31457, AA843088, 45 H03207, D55029, N24598, AA594908, T32381, AA812708, N53479, AA446638, W92031, Z38999, AA854346, T03367, N59208, AA433953, AA453877, AA083102, AA453793,

AA845619, H61258, H61254, AA984316, AA292062, T96124, AI023077, AA600088,  
W92032, AA292162, AA856358, AA929411, AA509752, AA637345, AA003370, AA718711,  
AA212242, W11129, AA089155, AA052492, AA277010, AA184206, W70784, AA103584,  
AA656802, AA277035, AA644832, AA117871, AA832587, AA727479, AA003900,  
5 AA049014, AA461759, AA009086, AA821436, W08251, W67029, AA237501, AA990551,  
~~AA615815, AA466218, AA968230, AA895501, W35974, AA080240, AA444348, AA119315,~~  
AA562230, AA615358, AA672796, AA855999, AA032887, AA030783, AA727629,  
AA562528, AA560856, AA105077, AA221346, D21560, AI021598, AA221474, C76042,  
AA399724, AA266701, C80733, W97848, AA869353, AA856003, AA562930, AA408977,  
10 AA072921, AA986604, AA964553, T24128, AA978729, C22771, AA963531, AA618677,  
C70539, AA882818, M89085, C19540.

## SEQ ID NO.358

15 AL020992, AC004457, X53815, D87664, M99416, AC000077, X03674, X14520, L23176,  
M76611, L02537, AL010259, X90947, D00814, AF068865, D84102, AE000006, AL021768,  
AA642981, AA458937, AA889703, T57200, AA653968, W49620, AA593002, AA725435,  
AA027201, AA903402, T55953, AA235819, AA084809, H62064, H61158, AA027200,  
20 AA084808, AA399478, AA293409, AA236101, AA676879, AA454941, W48794, T90533,  
H17823, R42888, R69560, AA083102, AA984316, AA446638, AA929411, AA509752,  
AA718711, AA637345, AA212242, AA856358, AA184206, AA606789, AA052492,  
AA277010, AA277035, W53759, AA867237, AA656802, W70784, AA869353, AA072921,  
AA107134, AA080240, D21560, W67029, AA049014, W35974, AA266701, AA560856,  
25 AI021598, AA968230, AA832587, AA117871, AA895501, AA615815, AA644832, AA221474,  
AA032887, AA681567, AA030783, AA221346, AA444348, AA964553, AA963531, C22771,  
AA786747, AA882818, AA618677, C70539, M89085.

## 30 SEQ ID NO.414

## SEQ ID NO.415

35 AA465221, AA761570, N46857, AA962609, AA815408, AA916501, AA766065, AA777308,  
H71811, N40451, F04649, N48489, Z40509, R81713, R10095, W56471, R81712, R69729,  
AI026098, AA465576, AA907934, Searching.....done, No hit  
found..., AA956540, AA508944, D49223, AA785673,

40

## SEQ ID NO.425

U65403, Z80216, AE000085, AJ001073, M22382, U65012, U68562, U18796, M34664,  
AF055066, AB012246, J03526, AE001119, X53585, U39678, X76381, X54793, M22383,  
45 U67571, AC002332, AA693933, AA721028, AA931296, R17072, AA677155, AA256862,  
AA639733, AA330429, AA329760, AA329619, AA857474, AA315609, N51133, T73002,

T50017, N28647, AA630706, N48489, W56471, R88588, AA054158, AA465576, N40395, AA733082, W81268, H64434, AA497682, AI006249, AI006553, AA793856, AA080715, U83072, T38855, AA680838, C34525, AA585543, AA433185, C36942, D68814, C35667, C82456, C07307, T01513, C67256, C83312, C38834, C63938, C39559, C36768.

5

## SEQ ID NO.426

AL022717, AL021811, AJ229043, AE000663, M14954, AF015262, U64875, AL008721,  
10 U67598, AC002038, L32025, AC004260, AF005273, AA465221, W56471, N48489,  
AA761570, N46857, AA962609, AA815408, AA916501, H71811, AA777308, AA766065,  
N40451, F04649, Z40509, R81713, R10095, AA465576, R81712, R69729, AI026098,  
AA640995, AA887050, AA428757, AA827684, R26595, AA425850, N51765, H61767,  
AA634168, AA772970, AA913803, AI000803, AA683016, AA131534, AA326555, AA360932,  
15 AA657785, AA808668, M79127, AA184065, AA142531, AA118014, AA266514, AA789837,  
AA793335, AA450792, AA816226, AA475628, AA571566, AA124474, AA980923, W87182,  
AA881077, AA796110, AA183820, AA546029, AA387073, AI047064, AI006095, AA856530,  
AA545027, AA212706, AA562843, AA238214, AA200973, AA155378, W57254, W10715,  
AA467376, AA415438, AA462041, AA154951, AA014633, AA549692, AA925969, C67346,  
20 D48653, D49223, AA998726, C71094, AA753088, C19153, D21978, D48703, AA956540,  
AA943103, C19196, C63639, M89370, D69496, C44629, C66412, AA964139, C73805,  
C71359, AA508944, AA801919, D27410, AA799424, F19870, D39451, D70177, D70637,  
C49979, N97760, AA875677.

25

## SEQ ID NO.427

Z84480, AC004022, AL022097, AP000040, AC005192, AP000049, AL022162, AC003103,  
AC000120, Z73358, AC004672, Z84486, AL021328, AC003982, AC002449, AC000114,  
30 AC002453, AC003100, Z97987, Z84572, AC004583, AC004016, AC004025, AL020997,  
AC002331, AC004457, Z81369, U66061, AF029308, AL023280, AC004021, J02758, X13368,  
M14642, AC005217, AC004659, X69907, U82207, X78901, AL022170, Z82206, AC003085,  
AC004777, AC003958, AL021368, AF015723, AF020533, AC003064, U84404, AJ229042,  
AC000118, AL023495, X55448, AC002461, K01100, AC005191, AC004099, L44140,  
35 AC004001, AC002538, AC000060, Z97206, U91325, Z76735, U85195, AC004644, D14458,  
U89338, AF052440, U52389, U52392, U52403, U52413, U52419, U52422, AC003662,  
AE000658, AF045555, AC004259, X03700, X15062, U21056, U17066, U17067, U21055,  
L06480, U54798, AC004650, AF052437, Z98866, AF052438, AF052439, AF052444,  
AC000119, AF052445, AF052446, AC002463, U16853, Z75890, AA468564, H95789,  
40 AA114285, R13106, R97714, AA526979, D44781, T03700, AA565720, W86423, H89240,  
AA883940, AA662792, H89241, N92085, AA894448, T97074, H84885, R70468, AA024980,  
AA644290, AA046291, AA555286, AA021624, AA429437, AA232884, AA232814,  
AA824487, T85108, T86598, N59886, W39204, AA983814, T77523, AA191084, AA729894,  
N32666, T06045, AA513733, AA808122, R77513, AA628885, AA861696, R70016, N29731,  
45 AA011693, AA564509, AA768393, AA652996, AA034946, W02335, AA250734, AA775632,  
R92002, AA877400, R27392, N75988, AA580437, AI034439, AA454158, AA483165,



- AA487178, H39064, N34333, AA528493, AA644333, AA946594, AA535808, AA579568,  
AA487237, AI052491, W56706, N20836, AA970907, T28195, H98966, AA702751, R42384,  
AA707033, AA059119, AA781354, H96596, AI042594, R25619, AA910650, AA577719,  
N89742, AA025543, R36643, AA844004, AA160328, AA677260, AA568316, AA995622,  
5 AA410187, AA477759, R42385, AA402512, AA172841, AA051594, AA671405, AA874518,  
~~D18938, AA516885, AA184252, AA673371, AA863812, AA521783, AA139062, AA881322,~~  
AA940092, AA116840, AA624257, AA684270, W81853, AA265929, AA068002, AA518171,  
AA795164, AA607854, W58777, AA915735, AA647218, AA474510, AA544194, AA068865,  
AA920031, AI047267, AA624337, W10596, C88483, R75374, AA990134, C76732, C87167,  
10 AA839745, AA266035, AA711617, AA734421, AA771132, W64885, AA023551, AA142663,  
AA763672, AA049838, AA105882, AA537298, AA655975, AA739383, C80502, AA049860,  
AA144324, W36027, AA244515, AA474770, AA272905, AA145225, AA546326, AA616328,  
AA155394, W97483, AA184030, AA596627, AA038973, AA189403, AA562135, C77306,  
AA492720, AA124557, AA793960, AA797524, AA123777, AA245198, AA560849,  
15 AA710704, AA177451, AA210094, AA763466, AA824021, AA871898, AI048396, AA270414,  
AA511147, AA562372, AA798102, AA986708, AI005940, AA220647, AA118264, AI020673,  
AA561337, C94869, AI009414, AI013223, AI012125, AA943390, AA944321, AA942703,  
AA899245, AI013420, AA901332, AA893971, AI011398, AA943299, AA901199, AI029767,  
AI045608, AA945726, C94140, AA942809, AA963781, AA849113, AA945912, C84887,  
20 H32868, C93814, C94232, C91158, AA441733, C92478, AA860057, C91087, AA786257,  
AI013512, N97924, C94355, C22923, C24350, C94364, C91272, C92370, C23641, AA955618,  
AI026572, T09923, C89665, D43589, C94014, AI029028, AI031009, AA899734, AA202852,  
AA819535, AA892825, D72816, AA859452, AA858662, AA955262, AA550431, C89830,  
C92314, AA891494, AA894318, C92964, AI031055, H34256, AA946253, C29337, C31762,  
25 AA900825, AA925250, AA964227, AI010870, AI045220, H35668, AA818136, AA875122,  
AA540046, C88358, AA612557, AA900141, AA926409, AA998321, AI008211, AI044633,  
AA818611, C36818, C92593, AA957493, AI045062, C25711, C83829, AA848939, AA851997.
- 30 SEQ ID NO.428
- AL022097, AF003530, AC000113, AC001051, AC003675, Z85995, Z84816, AC002056,  
AC004074, Z98255, AC002511, Z84720, AC004384, AC000055, AC004129, AL022170,  
AC004587, AC002091, AF039718, AC003005, Z81457, AL022393, Z99497, AC004415,  
35 AL009051, AC000116, AC004076, Z69943, AC005144, AC003091, AJ229041, AF020802,  
Z82200, AC002523, AC002083, U11682, AC002081, Z95559, AL021786, AC005176,  
AC004225, AC004741, AC004385, AC003925, AC002084, AC002498, AC004536, AC002526,  
AC002312, Z74039, U42835, AC002479, U14181, AC002385, U22084, U00047, Z72004,  
AC002295, Z82201, Z84718, AC004749, AL021069, AC002065, AC005271, AC004654,  
40 Z68871, AL009172, AL008715, AF035396, AC002463, Z92543, AC004615, AC004109,  
AL023579, AC002564, AC004746, AC004130, AC005166, AC002429, AC003677, U73649,  
AL021068, AC003106, AP000023, Z72001, AC002087, AC004094, U82828, AC003099,  
AC005160, AC004636, AC001642, N27134, AA425698, N78781, AA535734, R69270,  
AA743683, AA302706, H51692, AA573163, H48723, AA004673, H93293, AA359069,  
45 T86184, AA358430, AA492164, AA837691, R08674, AA493718, AA503278, F07773,  
AA872448, N85051, AA682235, AA358429, D44828, T16582, AA338723, W87336, T54615,

AA812982, AA492182, AA346163, W03066, AA089488, AA601206, AA133956, AA234148,  
AA622134, AA865308, R55836, N63427, AA776728, R93932, H13401, AA907797,  
AA292642, N63089, AA151141, AA150051, AA305343, AI022912, AA206427, AA521004,  
AA481509, AA991835, AA458461, AA709140, N67721, AA115527, AA167530, H68770,  
5 AA972921, AA976214, T16929, AA252624, AA325906, R96323, AA447247, H71679,  
~~AA701497, AA975970, H81693, AA100828, AA131828, AA235846, AA256264, AA401767,~~  
AA521047, AA587555, AA846049, AA121425, AI042266, AA227112, AI027598, AA103613,  
AA210279, AA210303, AA518247, AA555732, AA671124, AA763122, AA690026,  
AA137440, AA606964, AA242059, AA637947, AA389264, AA387721, AA153119,  
10 AA475777, W63923, AA693296, AA869042, AA871426, AA271740, AA184039, AA638053, ,  
AA550163, AA023866, AA849427, T18217, Z37707, T76862, AA851236, AA925440,  
AA892794, AA926180, T42444, AF020597, AI013566, N21767, N97219, T22536, AI007733,  
AA698306, AI008253, AI011516, AA550634, AI030056, AA141148, C84796, N96845,  
H76196, C22922, C70405, R86782, AA191824, C66333, C67098.

15

## SEQ ID NO.429

L12445, Z35659, U32751, U23523, M67991, U65655, AE000775, D85857, Z68116, Z68115,  
20 Z48334, U53501, AA256839, H85292, AA852539, AA009809, W90074, H58434, AA635799,  
R58547, AA018552, AA306158, W45031, Z40222, T32056, AA846872, T89544, H83085,  
W44584, R08617, R10343, H26970, AA743814, AA704417, T39659, T40715, R57905,  
AA724054, H82867, W67398, AA529982, AA980466, AA671346, AA538333, AA521837,  
W13639, AA619136, AA261447, AA760399, AA200739, AA087046, AA791386, T43427,  
25 AA123687, AT000037, AA943400, C50419, AA294059, C63449, AI044792, AA819898,  
T21132, H76371, Z26415, AA997929, AA438884, AA882631, H34142, C42761.

## SEQ ID NO.430

30 AE000786, AC002534, AC003671, D87742, AF045635, Z99280, AP000019, X73301,  
AF055066, N22700, N26671, AA852538, N39824, N31174, F05933, AA309729, AA300297,  
AA004740, AA600042, N52860, AA432213, AA429602, R21849, R22978, R39564, R33584,  
R37509, AA333530, AA530506, AA049905, W47859, W63897, AA549928, AA999511,  
35 AI011725.

## SEQ ID NO.431

40 AB001913, Z48239, U32721, Z74894, L81904, AC003687, AC001215, U67584, U41034,  
Z68317, AF015155, AC003998, Z70035, AF003132, AF014938, AI052250, AA135173,  
AA658198, R52882, AA935209, AA037599, R81636, F06786, W29045, AA971063,  
AA487956, AA093026, AA700660, AA449166, AA025351, AA206311, T07904, R68234,  
AI039243, AA025362, T57194, AA441972, AA028174, H73189, AA448028, T86650, T79739,  
45 F06258, AA678347, AA097583, AA711849, AA117187, AA104610, AA124472, AA217592,  
AA596277, AA061983, AA124750, AA230566, AA671835, AI007443, AF009727, AA851627,

AA800685, C92713, AA949956, AA898046, C91428, AA858740, AA851377, AI009790,  
F14079, AA979708, D37705, AI013904.

5 SEQ ID NO.432

---

AF001076, AF001075, U32681, AC004534, M33582, L24501, AC003113, Z85995, AC004142,  
U40800, U43375, AC005200, AC004613, Z71265, Z35637, AA496898, AA083885,  
AA018400, R78916, AA809238, C00727, AA593664, T05906, R84392, AA356896,  
10 AA348753, AA435639, R09284, T78152, AA622134, T77125, AA837697, AA079068,  
W63866, AA939532, AI036540, W33698, AA113497, AA532216, AI008021, AA540703,  
AA816271, AA990700, AA950767, AA816608, AA950988, AA141584, AA788149,  
AA440091, AA540934, AA955627, AA539015, AA391660, AA979647, AA956638,  
AA441643, AA264460, AA817098, AI009786, AA695592, AA440436, AA440938, AA821245,  
15 AA816607, AA802380, AA140871, N60235, AA944825, AA979037, F20054, AA698203,  
AA539962, AA536282, AA390297, AA979047, AA957711, AA950509, AA950006,  
AA942738, AA802556, AA440400, AA440502, AA390305, AA539067, AA539195,  
AA440351, AI013909, AA946273, AA942516, AA848499, AA817204, AA539630, AA680973,  
AA440330, AA955289, AA948815, AA924063, AA820547, AA536381, AA990836,  
20 AA735210, AA891455, AA141585.

SEQ ID NO.433

AB006707, AC004100, Y13034, AC000365, AC004598, Z81051, D78804, W27129, AI017782,  
D29518, AA027089, AA148983, AA747315, AA411220, AA701252, AA687243, AA422103,  
R70141, AA435001, AA404079, AA008128, AA572486, AA795341, AA004158, AA051674,  
W17808, AA674683, W13245, AA271695, AA433616, AA517270, AA144388, AA177843,  
AA822377, W71938, AA562569, AA518887, AA734703, W62333, W16372, W08500, C82830,  
30 C83686, F23094, AA555617.

SEQ ID NO.434

Z73359, AC003982, AF030453, X51875, AC004084, AL008725, AC003109, AC002553,  
AC004491, L81854, U52112, AL021939, AC002350, AC002059, AC000026, U91321,  
AC003043, AF006752, Z98036, AE000658, AP000040, AC002074, U85195, AC000067,  
AB001523, AC002316, U71218, AC003667, Z82976, Z54147, Z97054, AC004778, L78810,  
AC003110, AC003010, AP000032, AC002551, U63721, AC004685, AC003072, AC002310,  
40 U62293, U95740, AC004776, U91323, AF016898, U91328, AF053356, AC004382, AC004638,  
AC002045, AC004447, AL021155, AF001549, AC003103, AF024533, AC002301, AC002115,  
AP000056, AC000085, Z67997, Y10196, Z83843, AL022145, AC002418, AF024534, Z84480,  
AC002288, AC002425, Z84474, AC004386, AF064861, AC004623, AC004520, AC004151,  
AC002300, U95739, AC002126, AC000397, L48038, AC004125, AF001550, Z83838,  
45 AL022396, AC002116, AC004493, AL008635, AP000030, AD000812, AC000120, AC002390,  
L44140, L40817, U96629, AC003104, AC003956, AC002287, AL021393, D16583, U89387,

- AA249372, AA063358, N35927, R98687, AA737099, AA077052, AA443055, W42588,  
AA602540, H90843, H77956, AA490072, H73550, AA501781, N42646, AA318894, AI050922,  
AA653009, H81732, R94321, N55560, AA486680, AA005163, AA767276, AA658101,  
AA984920, AA452879, AA486580, AA322484, M77904, AA904211, AA149033, AA047275,  
5 AA866017, T06564, AF034176, AA643794, AA614197, AA603387, AA663074, AA758200,  
W38349, AA230155, N23919, AA320105, AA225548, F00688, AA486925, H29220, R00987,  
AA652910, AA188423, AA579437, AA533241, AI005241, T86730, AA991792, AA226142,  
AA229080, AA452998, AA229034, AA187277, AA748140, AA181070, AA525157,  
AA728933, AA808945, AA468319, AA468466, H47143, R36518, AA297776, AA715850,  
10 AA487074, N22153, W02033, AA636102, R81351, T58747, AA834765, AA100887,  
AI032585, R97802, H53321, AA372323, C06329, AA978101, AA459285, AA434037,  
AA459514, AA188897, T91017, AA491869, AA669329, AA492015, T74259, AA501426,  
AA074026, AI032875, H70425, , AA423702, AA475943, AA073266, W64810, W64836,  
AA764537, W58950, C87864, W62449, C87922, AA501128, C86532, W62377, C88111,  
15 AA823826, AA620234, C87438, AA501262, AA516955, AA863851, AA261001, AA427243,  
AI020118, C88193, AA764353, W97167, W77222, AA501297, AA863837, AA030390,  
AA261578, AA990245, AA717794, W51648, W61986, AA920656, C79677, AA414764,  
AA638449, AA238287, AA712062, AA590502, AI035290, AI035307, AA517646, AA516629,  
AA109592, AA589831, AA124697, AA163924, AA388267, AA138366, AA832570,  
20 AA138380, AA253992, AA638888, AA544053, AA138372, AA049041, AA216836,  
AA260786, W18022, AA145713, AA288642, AA619003, AA726578, W18014, AA163505,  
C79718, AA217036, AA177903, W97045, W97935, AA272788, AI042720, AA688882,  
AA154624, AA733622, AA881552, AA062017, AA014169, AA049365, AA607518,  
AA501217, AA189219, AA216905, W90879, W54605, AA863868, AA175510, AA049778,  
25 W06387, H39328, H39389, AA550283, AA817848, AA894110, AI008183, H39351, AI013937,  
AI044039, H34360, H33967, AA874831, AA924449, AA998556, AA942712, AA858572,  
H32904, AA944790, AA923995, AI008665, AA859198, AA850898, AA955448, AA893806,  
AA850727, AI010426, AI028965, AI009485, AA945588, H31789, AA107123, AA956675,  
AI044620, AA800974, AA944794, H33833, AA859718, AA802166, AA818876, H35257,  
30 AA925125, AA550596, Z36495, AA957396, AA996923, H33511, AA942692, AI012741,  
AA891642, H31489, AA056877, AA893827, AA893994, AA891239, AI009626, AI029815,  
AA943813, AA859010, AA925965, C93368, AA924474, AA957108, AA799649, H33090,  
AA849868, AA859091, AA924716, AA964244, AI044282, AA946046, AA848498, AA963624,  
AA801011, AA851699, AA891712, AI009418, AA817797, N38007, AA849327, AA859260,  
35 AI044945, H32789, AA859214, AA943379, AA892292, AI009642, AI045812, H31499,  
AI029897, AA735681, AI008303.

SEQ ID NO.435

40

- U73338, Z92822, U75743, Z83733, L21672, AF047657, AC004440, AC004082, D38514,  
Z92817, Z48717, AC002089, AA504613, AA504708, AA280659, AA347314, R86087,  
H42689, AA972733, AA233640, AA165330, W21594, AA314347, AA552609, AA513036,  
AA385198, AA584025, AA639118, AA909485, AA746900, AA777991, H58467, AA730763,  
45 AA729376, AA772741, AA630871, AA583071, AA523676, AA703351, AA463908,  
AA320676, N88631, AA865077, AA954801, AA877969, AA095487, AA635994, AA130491,

- AA089939, AA082240, AA188288, T61375, AI022488, AA991718, N95570, AA654041, AA643042, AA640880, AA662627, AA579495, F20436, AA385562, AA143245, AA846093, AA828770, AA738334, N95767, AA600874, AA482937, AA369439, AA177081, AA314679, AA348788, AA300820, T52356, AA230225, AA315847, T61408, D51249, AA985010, 5 AA857363, AA812272, AA308460, AA578698, AA521378, AA514011, AA503457, F21217, AA331107, AA330296, AA181874, AA186669, AA155740, AA148538, AA092441, AA085696, AA084377, AA081603, AA226239, N55743, T75023, AI024535, AA936154, AA876622, AA664666, AA781581, AA316413, AA558317, AA657547, AA652927, AA640404, AA591113, N96627, AA739559, F15294, AA900343, D27665, C83826, T13884, 10 AA752067, N97965, AA946497, AA041137, AA509018, C49783.

## SEQ ID NO.436

- 15 M90969, Z81084, U12361, U12351, Z70270, U12354, U12357, U12341, U12371, U12355, L39874, U12364, AB011476, Z97343, U58332, AC005177, AB007727, Z81594, M81327, AL023835, AL008633, D86971, Z82183, Z83229, M92089, AC003075, AA884816, AA828313, AA018399, AA811214, AA135468, AA281425, AA975189, AA789178, AA083884, AA689328, AA811901, R79014, AA249735, T25115, AA928681, AA909608, 20 C02049, AA775560, AA788871, AA596081, AA295431, AA824386, W74315, AI018411, AA658473, AA490714, AA259084, AA261999, AA258850, H85086, H44212, H18385, T63244, AA586967, AA676729, AA988830, AA059065, AA639804, AA916605, N34096, AA057472, AA635164, AI015641, AA483135, AA632080, T71816, C00094, T29391, AA601514, AA863447, R56653, R81829, H95199, D56941, AA031937, AA001637, 25 AA219653, T70119, AA579623, T77620, T89753, AA583770, R26438, H23301, D56964, N62896, AA133821, AA426099, AA443694, AA467857, AA452410, AA889752, AA577952, H59342, N76636, AA074511, AA031960, AA010622, D79943, AA721161, R68690, R22448, AA774612, T03471, AA578857, AA251387, AA911301, Z45012, AA001255, R85579, T70242, Z40360, AI033370, AA663627, H91710, AA150149, AA761656, AA700292, AA401656, 30 AA472361, AA518290, AA190148, AA437886, AA420360, AA792009, AA547655, AA574533, AA414890, AA684269, AA655256, D18644, AA645420, AA563394, AA666890, AA693000, AA538546, AA422806, AA289008, AA590748, AA546864, AA414728, AA561619, AA638415, AA547311, AA540541, AA952189, AA391985, AA540110, AA497363, AA990629, AA392796, AA439185, AA390996, AA263604, AA539975, 35 AA541193, AA391712, AA979008, AA264350, AA941371, AA951601, AA202932, AA978549, AA950814, AA941313, AA538635, AA951517, AA246411, AA438770, AA541057, AA201626, AA942497, AA978910, AA392477, AA202492, AA203033, AA949329, AA950926, AA941131, AA941565, AA941668, AA816730, AA439410, AA202468, AA820668, AA803082, AA392410, AA247023, AA735607, AA550001, 40 AA859752, T02714, AA957765, D33914, C24012, AA598067, AA892496, AI009837, C91907, AA701741, C24292, AA585791, AA858565, C93748, W03311, C24200, AA963050, AI045802, C24123, C90290, AI029888, AA832530.

- 45 SEQ ID NO.420

Z22751, AC000116, AP000053, L21672, Z95334, Z95704, X15198, AF076243, AF074021, AF015172, AC003671, Z81507, Z81082, U40954, U29700, Z82001, U67487, AF014117, Z81086, AF012811, AL023589, AC004082, AE001146, AB009518, Y12602, X61201, AF016433, AL021492, AB000800, AC002089, AA504613, AA347314, AA280659, AA504708, 5 AA469191, AA251938, AA512935, AA471183, N32731, R07623, AA085696, AA113894, AI041226, AA677026, AI049675, AA463908, AA569550, AA488003, AA573164, AA250120, AA591113, AA472211, AA801811, AA739559, N98071, N97723, AA900343, AA509018, D27956, AA041137, AA943027.

10

SEQ ID NO.421

Z35659, M67991, U23523, L12445, U32751, AE000775, Z68115, Z48334, U53501, Z68116, D85857, U65655, AA256839, H85292, AA852539, H58434, AA009809, W90074, R76454, 15 AA630237, AA306158, AA704417, H46425, T40715, AA018552, W45031, AA743814, R37523, AA976072, AA652029, T89544, T32056, H26970, H82867, AA724054, M91507, T39659, Z40222, AA745486, AA846872, AA532660, R10343, R08617, R57905, H83085, W44584, AA529982, AA619136, AA261447, AA087046, AA760399, W13639, AA200739, AA521837, AA980466, AA538333, T43427, AA791386, AA979149, AA123687, AT000037, 20 AA819898, H76371, AA882631, AA294059, H34142, T21132, AI044792, AA438884, Z26415, AA997929, C12250.

SEQ ID NO.422

25

AF055066, D87742, U03517, AE000786, Z77661, U96410, AC002534, AC003671, AF045635, AL023828, Y13027, X14564, AC002133, L25599, AF016485, AF038667, AB005248, Z99280, U00066, N22700, N26671, N39824, N31174, AA852538, AA309729, F05933, AA300297, N52860, AA429602, AA432213, AA004740, AA600042, AA333530, R39564, R37509, 30 H10751, AA779571, R21849, R22978, AA326278, AA828131, AA779268, AA021539, AA134969, R33584, AA272205, AA198541, AI050266, AA008780, W50581, W54065, AA013712, AA790199, AA530506, W39795, W47859, AA544020, AA285935, W78367, AA541855, AA756426, AA543223, AA407351, AA049905, AA980096, AA198960, W59406, AA543470, AA051746, AA051740, W63897, AA543462, AA549928, H35214, C22086, 35 AA540625, C44615, C44702, C66923, AA536593, C50811, C45621, AA695657, C43409, C42954, C39471, AA566406, AA802971, C22260, C09924, C08764, D75395, D74740, R30020, AA997324, C42563, AA996401, AA695316, AI011725, AA956731, C69349, D70026, C09085, AA697043, C47594, C44847, AA956205, AA951676, AA824226, C49923, C47102, C90229, AA685785, C68943, C49315, C45448, C09296, L47915.

40

SEQ ID NO.422

AE000853, M26434, M12452, AC004383, X96753, U31787, X55034, U74466, Z98866, 45 AF007146, D10483, AE000119, AC002382, AA312671, AA282643, D83876, N50595, AA187413, T83492, AA043135, W24247, AA319013, AA362082, W58065, T33545, H10621,

H10530, AA377379, Z24890, AA280559, AA383048, W39165, C04061, AA431253,  
AA432265, Z19408, T19207, T30424, N87732, T30773, AA887987, AA889949, AI027021,  
R50885, AA339666, W93928, R88247, AA349119, AA886792, H94757, AA336010, T93851,  
AA028181, AA435882, AA725635, R05354, AA169888, AA811848, T27916, R82851,  
5 N46251, W73523, AA613127, AA701208, AA416921, AA287199, AA420439, W44786,  
~~AI016901, T04879, R21563, AA255647, AA808699, N75835, AA764987, AA215889,~~  
AA316287, AA782982, AA324022, AA420440, AA424896, AA911858, N98986, W39384,  
AA397600, W44785, D30975, AA797057, AA407279, AA403499, AA795751, R74779,  
AA138599, AA839444, AA209842, AA756246, AA859362, AI011220, AA140641, AA697034,  
10 AA997115, AA141282, AA851172.

## SEQ ID NO.350

15 AC004766, AC000365, Z69796, AC002113, AL021069, D88026, Z81051, D50916, X91617,  
U15025, Z92547, X97604, W61030, AA954169, AI031842, AA838837, N52974, AA176341,  
AA588774, AA121949, AA187312, AA150669, AI026041, W58398, AA350776, N50541,  
AA825435, AA570012, AI031987, AA150793, AA837996, AI031602, AA101636, AA320713,  
W15235, AA919051, AA101635, N98564, W39035, H10349, AA878033, AA040866,  
20 AA432265, AA669911, AA280315, AA431253, AA669917, AA631159, AA856641,  
AA121931, C04061, N44345, AA865662, AA858033, T30424, AA282538, Z28505, Z19408,  
T83345, AA034925, AA916616, AA034933, N87732, N54028, AA318757, AA043135,  
H10530, F00334, N56380, T33545, AA633832, W39165, H10621, AA377379, AA319013,  
AA969361, AA436123, AI016907, AA291976, AA226925, C15007, AA131733, N71334,  
25 AA164385, AA292165, AA523137, AA293317, D51248, AA641507, AA257016, AA636038,  
AA180746, AA868969, H24765, AA292065, AA398577, T63419, T97980, AA576119,  
AA270174, AA245702, AA711339, W55650, AA407278, C79004, AA561714, AA667194,  
AA288522, AA204018, AA137940, AA286384, AA203785, AA125556, AA265874,  
AA474321, AA795566, AA537211, W78283, AA671347, AA111556, AA071706, AA511061,  
30 AA867100, U91685, AA166356, AA153041, AA200270, AA981316, AA891230, AA848299,  
AA924412, AI008010, C91817.

## SEQ ID NO.418

35 L11670, X94265, M60871, AF053745, Z93021, L35272, U62631, AC002511, AC004243,  
M37033, AF043703, AA148393, AA147086, AA322967, AA322914, AA353196, R20069,  
AA054189, AA362206, AA054169, AA360832, T65088, R37922, H70124, AA360994,  
T19006, AA731897, AA503711, AA431090, T85391, W74404, AA055285, AA158657,  
40 AI002203, H09138, AA297027, AA417202, AA991752, AA976655, AA621848, AA481261,  
W45634, AA811477, AA694317, AA330583, R68013, AA058932, AA286960, N45566,  
AA287919, AA731027, T71098, H92640, N40079, N44797, AA707671, AA464675,  
AA253389, H45906, AA968917, R64206, AA431091, AA773762, AA253414, AA731754,  
H42129, N32469, N90240, AA743738, T58992, AA455204, AA794141, AA245190,  
45 AA110302, AA178023, AA673874, AA212119, AA274662, AA895062, , AA901423,  
AI029474, AA875475, AI012039, AA799473, AA942674, AA924688, AI010780, AA787461,

AA951210, N96484, AA231739, AA712303, H32118, D70105, AA957641, D69835, D69760.

## SEQ ID NO.419

5

~~AE000658, Z94277, AP000056, U85195, AC002529, AC004259, Z19108, X72582, Z81308,~~  
AC002416, AF064863, AL022580, AC002390, L36897, Z83836, X02421, AL031024,  
AC000389, AF011889, AL021768, M63839, AC003103, AL022727, X70810, Z69360,  
AL009051, Z99660, J03300, Z79602, X00044, X06254, Z73905, X00480, L35664, X55736,  
10 Z68144, V00683, J01465, Z11874, X52046, AC003074, AC000119, AF002109, Z82274,  
AL021939, Z93722, U82668, AC002357, L48177, Y08062, Z99572, AC004482, M80599,  
L39655, AL021997, Z97355, AC000098, AE000659, AF016661, AC003000, AE000440,  
AC005012, AC003100, AA904418, N24778, H83690, AA382262, AA331106, AA609762,  
AA432261, AI015258, AA136051, AA130132, H60707, AA918423, AA130119, AA383217,  
15 F03710, T65372, AA905286, AA776540, AA018501, D52831, AI015086, F09402, AA830369,  
D20019, AA382789, AA088173, N25204, D62401, AA789201, AA058373, AA129862,  
AI051093, AA629332, H22958, R68944, R63968, AA826414, AA258314, AA435914, F04748,  
AA405559, N90250, W81127, H82506, AA984104, AA937297, AA830368, AA620335,  
AA397874, AA165524, Z39390, AA918246, AA629349, C80595, AA174553, AA463120,  
20 AA389945, AA072603, AA590182, AA967846, C87349, AA924689, AI045120, C90061,  
AA514083, AA963786, C91562, C25634, AA283499, C91337, C89627, C92908, C92150,  
AA818963, Z29889, C93719, C58285, C25530, C90119, C57162, AA471570, C89706, C24337,  
C91047, D22759, AA390616, C94110, AA265012, C59331, AA542533, C33821, N97688,  
AA751636, N38534, AA395695, H16491, N98027, C49783, C68487, C69927, C94082,  
25 T44510, C45504, C92722, C93847, AI029615, AA141050, D27665, AA118244, C93931,  
AA893204, C94120, AI030030, C92508, AA842966, T14900.

## SEQ ID NO.416

30

U78312, D26185, U88182, U58972, AF045775, Z99104, AC002070, D44915, D81665,  
AA243373, AA830325, C15608, W45435, L44402, AA768320, AA215717, AA740983,  
AI032793, AA113113, AF034174, C00818, AA953516, AA643067, AA758212, AA154161,  
AA717139, C24338, AI026597, C94015, C90664, C94074, C90179, T38999, H34977,  
35 AA754145, AA892815, AI028926, N27312, AI030810, AI045851

## SEQ ID NO: 437

40

AF012072, Z34918, AF012088, D12686, AJ001046, L22090, AF067220, AC002343, Y10804,  
U39676, U66160, Z46240, Z97205, X84923, U64827, AA191463, AA113265, M85634,  
AA632286, AA744722, AA743070, R80171, AA659197, AA935439, AA262384, AA580810,  
AI039220, AA857299, AA019268, N42261, N65990, AA505387, AA618058, N75063,  
45 AA303191, H46968, AA740463, AA161498, AA019241, W31772, AA908395, AA488220,  
AA206825, W32291, AA931076, AA746487, AA455451, W31201, AI016519, AA031646,



- AA936118, AA923624, AA633053, AA609344, AA488254, AA455452, F18818, R72160, T59794, AA722193, AA491642, AI039617, AA609958, AA078878, AA843390, AA742679, AA722666, AA024633, AA736602, H11063, AA281783, AA722981, AA715375, AA437201, AA234719, AA226545, AA512922, H40724, W84602, AA863411, AA713530, AA436462, 5 AA441796, AA133599, W74161, R53463, AA806686, AA576035, AA226209, AA171367, AA166246, AA171042, C80644, C77834, C80833, C78609, AA655154, AA607383, AA445222, AA899256, C19374, C60443, C65586, C62715, D36745, D28092, C83994, C94615, AA944136, AA950370, AA875505, AA696127, C65315, AA957813, AI008521, Y09360, T26752, H55061, C39854, AA900968, AA891252, AA540438, AA943755, AI045237, 10 AI043252, C64689, AA696375, AA440250, AA979307, AA858492, AA858497.

SEQ ID NO: 438

- 15 AF012072, U04282, U93694, AL010269, Z99104, AB002150, AC002541, N34551, AI017135, H99291, AA903329, AA937078, N34541, AA425182, AA457547, D59286, D62357, H89366, AA526320, N29478, AA609043, N75058, AA490854, AA457747, H89553, N66282, D62145, AA665666, W79550, AI014367, N92469, R50684, N25822, C21162, AA468635, AA766801, AA163459, AA289612, AA209088, AA172736, AA982479, AA137939, AA445488, C86651, 20 AA254210, R75462, AI019204, AA509441, AA002277, AA655398, AA451453, AA959668, AA960423, AA958949, AA815887, AA397202, AA734512, AA893170, AA998982, AA964477, AA819125, AI009093, U30849, AI029468, C93730, AA570819, F13984.

25 SEQ ID NO: 439

- AF012072, AB003362, AC004289, D29759, X87108, Z48716, AF007128, U18916, Z81089, AC004100, AB010073, Y07749, U36624, AA425125, W40521, AA774760, AA249536, AA025079, AA293841, N24286, R17022, AA284646, AA813789, AJ003275, AA703531, 30 F06699, AA916681, AA991282, N91049, AA769441, AA806272, AA922902, AA770557, N39869, AA604524, AA669349, AA766229, AA814368, AA502725, AA044583, H66421, AA912519, R54165, AA033569, AA972243, AA058420, C04504, N75161, AA477082, AA428824, AA878232, AA477360, AA179025, Z98510, AA479741, AA055480, H29633, AA744586, AI041216, AA781138, AA058384, W01276, AI039716, AA456309, N85658, 35 N36178, N34263, N34260, AA499955, AA623031, AA871801, AA623053, AA762442, AA061706, AA387192, AA142665, AA396105, AA050454, AA220744, AA013789, AA518182, D36337, AA098651, AA998845, AA787710, C23744, Z92701, AA080702, AA454282, AI044363, AA713021, AA191846, AA712577, AA893720, AA676129, AA550275, C23701, Z29876, AA257810, D66495, C93766, F14340, C41638, T38212.

40

SEQ ID NO: 440

- AF012072, U04282, U93694, Z83838, AJ229042, AF051934, AC004238, Z74352, X84162, 45 Z49209, Z74351, Z48717, AF005675, AF005674, Z74072, U04280, X56564, AC004414, AF005697, AF005694, AF005680, AF005673, AF039057, Z74071, AF005669, AF005683,

AF005679, AF005682, Z48432, AF014948, AF005670, AF007943, AF005681, AF005678,  
AE001040, AF005684, Z68748, U53337, Z75714, AC002541, L12722, U41624, AF005672,  
AC004016, Z97342, U29157, AF067619, U88173, U88166, AC002465, Z99281, AB008681,  
Z72831, U62943, AF029791, L05514, L04132, AF005685, AF005671, AA425182, AA457547,  
5 H89366, AA937078, N34551, AA903329, AI017135, N34541, H99291, D59286, D62357,  
~~AA665666, N92469, AI014367, W79550, R50684, N25822, AA457747, N66282, C21162,~~  
AA468635, AA490854, N75058, N29478, AA526320, H89553, D62145, AA609043, N44557,  
W05794, AA705169, H06933, W88709, R42683, AI017605, T68350, N95594, AA336339,  
AA528395, AA083916, AA147928, W25684, AA604164, H93075, AA013334, AA776703,  
10 AI000693, AA163459, AA209088, AA289612, AA172736, AA982479, AA137939, C86651,  
AA254210, AA445488, R75462, AI019204, AA509441, AA002277, AA655398, AA571528,  
AA139333, AI021204, AA451453, AA537146, AA537280, AA271829, AA612432, AA276965,  
AA433546, AA516947, AA821737, D18988, W16283, AA958949, AA762234, C85907,  
AA589522, C76067, AA690108, AA759947, AA968368, AA003958, AA063879, AA166186,  
15 AA397202, AA608321, C76476, AA177406, AA615429, AA832682, AA216884, AA959933,  
AA960279, AA178520, AA197396, AA254248, AA646552, AA270884, AA960071,  
AA032352, C76479, W53243, W41360, AA794425, AA673901, C76467, AA267923,  
AA959668, C79956, AA960423, W35735, AA623342, AA893170, U30849, AI009093,  
AA964477, AI029468, AA998982, AA819125, AI009853, AI008017, C10511, AA658642,  
20 AA874889, AA944429, AA193834, C83963, T18112, AA495115, AA550212, AA848179,  
W51512, AA842891, AI044502, AA257402, C94558, AA728034, AA941899, AA727986,  
AA273092, AA848184, AA728058, AA570819, AA728040, F13984, AA848180, AA728053,  
N43466, AA280453, AA997836, R82900, AA542796.

25

SEQ ID NO: 441

AF012072, D12686, L22090, Z48716, Z97336, U23518, AC002090, U33936, Z81089, L20738,  
U90338, M83681, Z74019, L20736, L20735, AC004782, AA931479, AA774760, AA293841,  
30 R74054, M85634, AA025079, AA402442, AA425125, AA779433, Z99374, H09880,  
AA456309, W01276, AA814368, W84888, AA502725, H01349, AA703531, AA744586,  
AA159913, AA056242, AA766229, AA769441, AA131358, AA991282, AA806272, T16876,  
Z38729, AA972243, AA480453, AA617800, AA655434, AA163547, W30630, AI037737,  
AA623031, AA871801, AA623053, AA546712, AA142665, F23005, Z29876, C61324.

35

SEQ ID NO: 442

AF012072, Z34918, AF012088, D12686, L22090, AJ229042, AF051934, U84100, AF005680,  
40 Z48432, AF055066, AF005679, AF005674, AF005673, AF014948, AF005681, AF005683,  
AF005670, AF005675, Z74072, AF005682, AF005697, Z74071, AF039057, AF005669,  
AF005694, AF005685, AB008681, U29157, AF005684, AC003009, AC004532, Z68748,  
AC000066, AF015454, L05514, U62943, L04132, Z68296, AF005671, AF005672, U03496,  
AF005678, AF030884, U84099, AC004763, AI014367, N92469, C15377, AA134568, W05794,  
45 W17157, W79550, AA468635, R50684, N25822, AA665666, AI039626, AA134567, R50683,  
AA457747, Z26996, AA491028, N44557, C21162, AA425182, N75058, AA527291,

AA147590, AA730099, AA910355, AA011174, AA095103, AA610357, AA658171,  
AA211545, AA059268, AA579633, AA173380, H50624, AI024443, R73685, AA176799,  
H56415, AA010443, AA713681, AA521194, H01346, AA312008, AA613629, H89553,  
AA604164, H93075, AA705169, H79772, AA336339, AA776703, AI017605, AA563630,  
5 AI000693, AA102784, AA509441, AA655398, C86651, AA002277, AA210375, W61392,  
~~W61394, AA840592, AA822617, AI019204, R75462, W30394, AA008667, AA254210,~~  
AA103273, AA172736, AA261254, AA839128, AA033419, AA014557, AA212904,  
AA762524, AA080224, AA409974, AA139181, AA881971, AA538296, AI048331, AA959429,  
AA139372, AA538203, W29456, AA538068, AA271264, AA209088, AA244839, AA530597,  
10 AA174577, AA104643, AA152553, AA038437, AA608039, AA048344, AA451453,  
AA271829, AA762267, AA762288, AA140341, AA893170, U30849, D33256, C11247,  
C54341, AA720446, AA624966, AA658642, AA800217, AA925357, T18112, R82900,  
AA999529, AA241425, AA495115, C36016, AA241554, AA941899.

15

SEQ ID NO: 443

AF012072, Z34918, D12686, AF012088, L22090, AJ001046, AC002343, U41109, Y10804,  
X84923, D90909, U23179, Z49127, M21538, AF012759, AF025311, U66160, U95072,  
20 U64827, L06314, W28058, AA744722, AA743070, AA632286, AA191463, AA213861,  
AA226545, AA618058, AA437201, AA488220, W31772, AA512922, AA609958, W74161,  
AA715375, W31201, AA226209, AA719430, AA161498, AA576035, AA455451, H46968,  
AA722666, AA806686, N42261, AA740463, AA908395, AA609344, AA303191, F18818,  
H40724, W87293, AA857299, AA078878, AA936118, AA488254, AA455452, AA262384,  
25 C80833, C80644, C77834, C78609, AA171367, AA510297, AA607383, AA692251, M79676,  
D28092, C19374, AA754258, AA963758, C65586, C62715, C60443, D36745, C55049.

30 SEQ ID NO: 444

AF012072, Z81472, AC002541, U04282, AC004056, L12722, U88166, AF029791, U88173,  
Z72831, U93694, AE001040, Z83838, U61954, AA457547, AA937078, N34551, AA903329,  
AI017135, H89366, N34541, H99291, D62357, D59286, AA425182, N66282, AA526320,  
35 N29478, N75058, AA490854, AA457747, H89553, D62145, AA665666, W79550, AI014367,  
N92469, AA609043, R50684, N25822, C21162, AA468635, AA278278, T80867, N44557,  
AA714177, AA969095, AA972159, AA163459, AA172736, AA289612, AA209088,  
AA982479, AA137939, AA445488, C86651, AA254210, R75462, AI019204, AA509441,  
AA002277, AA655398, AI021204, AA451453, AA537146, AA537280, AA516947, AA893170,  
40 AA819125, AA998982, AI009093, AI029468, AA964477, U30849, AI009853, AA550212,  
AA570819, F13984, AI044502.

SEQ ID NO: 445

45

Z48245, X83276, Z74247, X99000, M94227, U08352, U03473, AF018435, L23514, U67178,

- X94357, Z46260, L15551, Z72778, U32716, AB007467, U69552, Z35927, Z72777, M33278, M93143, N28296, AA663317, AI040617, AA971393, T67549, H95292, AA017197, AA375721, F08457, AA554095, AA767869, AA553380, AA235268, AA355944, AA612265, AA596275, AA098609, AA185885, W12188, AA881433, C78467, AA896711, AA154044, 5 AA215085,
- 
- AA859725, AA899160, AA803715, AA539999, AA391055, AA440858, AA942341, AA841067, AA949896, AA438398, AA540338, AA246238, AA696942, AA440043, AA471413, AA694720, AA950337, AA949459, AA941839, AA264579, AA820662, C90662, AA817450, AA540949, AA735842, AA439703, AA951570, AA950029, AA952009, 10 AA540420, T17538, AA979292, AA438336, AA264221, AA264219, AA949999, AA951921, AA536418, AA820922, AA540051, AA441238, AA948809, AA990845, C93099, C62127, AA391443, AA990743, AA951533, AA941915, AA941397, AA820068, AA541131, AA439451, AA979218, AA950015, AA820742, AA202727, AA520774, AA949921, AA820751, AA264112, AA697033, AA695530, AA541155, AA979643, AA978852, 15 AA949685, AA952137, AA942561, AA820429, AA264776, AA440402, C92054, D24625, C91180, C92438, C93119, AA874812, C23728, C72462, C92892, Z30501, C72097, AA042346.

SEQ ID NO: 446

- 20 AC004463, AC004158, AB006697, Z98048, AB009055, AF001549, AC002524, AC002406, AC003964, L10986, U18972, X65636, Z81089, Z95126, U73479, AC003086, Z99497, AI025516, N25214, N67129, AA903608, AA476806, AI051500, N31470, AA446451, AA027854, AA363793, AA605127, N51334, W42456, AA547935, AA918084, AA630088, 25 AA938286, T89721, W03461, AA311168, AA788746, T34721, AA363794, R41694, N44037, N63123, N44264, AA173913, AA055080, Z39124, R50963, AA299991, H86158, N36390, AA730429, C04162, AA034988, W42561, D62071, AA653819, AA665081, AA055134, H71242, AA029314, AA677064, N41425, W69895, W69841, AA063620, AA029867, AA040154, AA693737, AA701241, N47678, AA609289, R15106, AA088480, W24445, 30 AA480782, R51810, H10220, AA579772, C79455, AA792161, AA671422, AA756344, AA822139, AA209822, AA118978, AA516715, AA762373, AA267569, AA245913, AA153688, AA239881, AA139444, AA117206, C78532, AA851788, AA800969, AA849566, AA901258, AA924056, AI011424, AA923925, AI010363, C66629, C67564, C70380, C91257, AA999535, C21953, AA549907.

35

SEQ ID NO: 447

- M62953, Z95126, X55749, D89218, U31907, X55751, U60480, U97017, X55747, D63665, 40 AA098876, W65387, AA452524, W61291, W48754, AA320709, AA364030, AA828979, AA311692, AA315870, AI040491, N26738, AA745708, AA053636, AA234186, H90042, AA302541, N55714, AA361364, AA101794, AA102356, AA129123, AA279517, T63748, N56506, T63422, AA092931, T82177, AA249676, AA205858, AA098877, AA773566, AA886992, AA093538, AA342846, AA224364, T60516, AA219081, H57387, N42040, 45 R93314, W60845, AA236104, AA452600, AA150480, T89078, AA221191, AA184431, C89104, AA097593, AA467585, AA571506, AA867389, AA896118, AA163079, AA472882,

D17813, W64901, AA123458, C23074, AA925213, AI010563, AA900880, AA955169,  
AA925719, AI010069, AA925289, C23075, AI011062, AA945182, C26456, W05857, C28210,  
AA785779, AA801957, AA990976, AI029646, H04730, AA819590, AA924393, AA495335,  
AA900197, Z30935, C62163, AA891625, AA597908, AA964238, AA824898, AA900027,  
5 AI029124, AA850824.

---

SEQ ID NO: 448

- 10 AF070717, U14571, Z73429, AC004785, M82819, AC002365, M30688, X54486, X96421,  
Z84814, AC002428, Z97053, AC004627, Z75895, U82208, AF048729, AC004400, AC002980,  
AC002418, M19878, AC002465, U73638, AC002203, X71342, AL008712, Z68276,  
AC002119, U62293, Z98036, AC002543, Z81370, D86256, U14573, AC003071, AE000660,  
AC004472, AC004687, AL009172, AC002477, AC004217, AC002433, AB000877, AC004475,  
15 AC004651, AC004552, Z84467, X69951, Z46936, Z84572, Z97632, AC003663, Z69917,  
AC003098, U07562, AC002306, AC004084, AL020997, AC004694, AC004761, AC004534,  
AC004762, AC003085, AC002289, AL022396, AC003009, AC003002, U95742, Z98745,  
AF053356, AC004257, AF023268, AC004799, Z82243, AC004760, AC003982, AC004706,  
Z97876, AF003626, AC003006, U82828, AC002468, M19482, AC002126, AD000812,  
20 AC005264, AF064864, AC000381, Z97352, AL009029, AD001527, X55448, AC004647,  
AC004699, AF020802, AC005181, AC004773, AC003963, M29929, AC000397, AL021920,  
AA279518, AA629913, AA773566, N69507, AA132750, AA098877, W92962, AA454107,  
W48755, AA630713, AA669834, AA886992, AA595682, C15093, AA224364, W92961,  
C15141, AA863200, W72931, R76765, AA992646, W94226, AA580701, AA219402,  
25 AA197313, H22885, AA470899, AA279517, AA633244, AA374705, AA224225, AA809964,  
AA903014, F00274, AA705999, AA129124, AA679478, AA342846, W61291, AA452524,  
AA501614, AA206468, W65387, AA720732, AA854515, R92404, AA628627, H57826,  
AA357307, AA663966, T48872, AA526193, AA130501, H63193, AI049996, AA631497,  
AA632479, AA593471, T78484, H74314, AI016704, AA190895, AA515046, H05073,  
30 AA983692, W23546, N64587, AA730581, AA077776, AA093538, AA655005, AA878149,  
F17700, AA972238, AA491814, AA635442, AA654761, R92629, N54902, AI049634,  
AA714956, AA493170, AA446657, AA973803, AA603323, AA838140, AA838161,  
AA662974, AA068993, AA830594, AA528480, AA601405, AA513141, AA484143, AI049598,  
AA558404, AA553448, AA689351, AA493708, AA832175, AA823826, C88111, W64166,  
35 AA501262, W61986, AA501297, AA516955, AA516629, AA517646, AA474026, AA517461,  
C87438, AA415875, W64884, W51648, AA863851, AA501128, W62377, AA501217,  
AA815883, AA575771, AA855776, W71517, C87922, AA682032, C77110, AA547030,  
C78926, C86532, C85415, C79035, AA267254, AA414457, AA717992, AA275703,  
AA869376, W82358, AA683670, AA067744, AA239405, C79044, AA068376, AA068629,  
40 AA409884, AA789411, AA207823, W82382, AI035398, W62449, AA407027, AA840572,  
AA571579, AA856295, W29776, AA792596, AA119316, AA636169, C80141, AA959694,  
AA571757, AA763006, AA636431, AA015385, C78109, AA461753, AA840059, W18242,  
AA117146, AA606436, AA174514, AA645837, C88511, C79965, AA764103, AA560758,  
AA427030, AA855816, AA163924, AA162296, AA619556, AA755480, AA272861,  
45 AA222401, W77222, C76269, AA692659, C87864, AI042687, AA608054, AA512244,  
AA125170, C88193, AI042727, AA691470, AA030390, W97167, AA990245, AA863837,

AA184653, AA636152, AI044039, H39328, AA550283, W06387, Z69957, H39389, W06750,  
AF064463, H39351, AA923995, H39426, H39330, AA944794, H35257, AI010426, D85806,  
AI028846, AI045509, AA894110, AA893817, AI008183, H33967, AA107123, AA685069,  
AA963620, AA859526, AA997451, AA874831, H39321, AA943496, AA550596, AA849991,  
5 AA943694, AI030760, C07070, AA685291, AI009724, D86672, AA963624, AJ007482,  
AA848468, AA848467, AA957421, H34360, AA901012, AI044651, AA894153, N65714,  
H36789, AA965023, AA996668, T04805, T46123, C06795, AA893278, AA892034,  
AA925284, AI010756, R61943, AA866335, AA900932, AA996923, AA997772, AA849825,  
AA875253, AA924367, AI012418, AA850317, AA924449, AA925081, AA925965, AA957108,  
10 AA957649, AA926011, AA892461, AA943060, AI029973, Z36495, AA800915, AA891273,  
AA926052, AA943756, AA957185, AI028965, AI043956, AA957648, AA550338, AA849883.

SEQ ID NO: 449

15 AB002334, U53881, X91258, Z73307, AL022141, Y13619, AC002531, AF000986, AC002067,  
Y13618, Z49235, D12705, M37814, AB009801, AB011102, AF013994, AC000079,  
AA884499, AA284164, AA485240, R62283, N77782, D55907, H03910, R81382, Z30154,  
AA424252, AA283601, AA121309, AI025572, AA962253, AI004251, AA885519, N56823,  
20 N24401, AA368012, AA057815, AA657613, AA279167, AA523596, AA355729, AA807695,  
AA778319, AA714915, AA426051, W86568, H73918, AA458855, H97828, D45288, N39256,  
AA292707, N35075, AA872385, H81767, N22843, N77543, AA252109, H91720, AA742921,  
AA137146, W92746, N41004, AA765561, N20388, H12060, AA987884, N90453, AA794705,  
AA939766, AA217673, AA710704, AA096644, AA855480, AA123123, AA863940, C12945,  
25 T02625.

SEQ ID NO: 450

30 AB002334, AP000046, X83719, L36453, U80678, X83721, U80029, L01902, X83720, U59823,  
L13934, Z73424, AC004513, Y13001, AF021875, U40421, AC002420, L01884, U59824,  
AF008958, L12624, AF040655, L21938, L21941, L36443, M83544, U67476, Y13013, X73124,  
AC003100, X89598, X91648, AF006605, AC005159, Z54270, AB011370, Z81035, AE000667,  
Z68000, U97405, AA732697, R34331, AA358170, AA833852, AA252581, AA213793,  
35 R34468, AA490173, R34353, T97185, AA292885, R61198, AA401718, T07867, AA039614,  
AA372590, AI040839, R63338, AA099897, R62976, AA453724, AA769045, AA774553,  
AA939302, AA046369, N20509, AA040932, H10046, F09133, AA854251, AA805822,  
AA890548, AA187489, AA554354, AI018779, N52869, AA040931, AI004712, AA099723,  
W89200, F00920, H12131, N59350, AA558555, Z21884, AA550953, AA219189, AA640439,  
40 AA875891, H66333, AI016358, AI027786, R59332, M77996, AA227489, AA856726,  
AA993273, R49022, AA464745, AA687164, AA627198, AA203448, N37066, AA511424,  
AA645131, AA543906, AA815840, AA154089, AA637099, AA592204, AA692951,  
AA469486, AA543143, AA637522, AA726848, AA592225, AA739228, AA543314,  
AA850337, N97708, AA817874, AI009736, AI013648, AA567950, C44375, C93776, C10630,  
45 AA549866, C42364, AA698867, T18073, AA957621, C23354, F14798, AA698522, C34260,  
T09817, C23134, AA957956, C59717, AA696412.

SEQ ID NO: 451

U64205, M80359, M83780, Z83868, Z83869, X97630, X57244, U73647, X70764, AC004299,  
5 L34260, L13688, U67194, L25785, Z25427, AC003003, AA290719, AA333580, AA320088,  
AA089778, AA301238, T78225, C02859, AA133557, R59342, AA151030, AA355307,  
AA364449, W90468, N62695, T86307, AA013064, AA283707, R12018, AA729649,  
AA741068, AA885078, AA033002, AA116439, AA920775, AA125070, AA764145,  
AA867040, AA254375, AA545411, AA940520, AA197991, AA033004, AA060127,  
10 AA656077, AA255255, AA500348, AA760017, C87483, AA624168, AA606638, AA638647,  
AA690532, W54061, AA103712, AA032650, AA052505, AA239397, W64894, W81837,  
AA239088, AA684473, AA239618, AI006813, AA171315, AA466419, AA469586, AA799242,  
AA450554, AA008975, AA538510, AA623682, AA949338, T02689, H35550, AA925022,  
AA660849, AA946458, AA801231, C38991, C22918.

15

SEQ ID NO: 452

20 M80359, U64205, L22181, U80023, W73035, W73300, N53366, T87824, AA703093,  
AA160135, AA700887, R99177, AA707716, AA102559, AA969546, T71931, T90093,  
AA983859, D29560, R37874, H93969, H93970, N70406, AI026054, AA081085, W05032,  
AA775670, AA604551, F04119, AA522703, AA412299, AA642662, AA516359, AA805486,  
T82912, AA082201, AA627618, H09721, AA629064, H48830, H67287, F02748, R59343,  
25 R49054, T28619, AI025563, W89509, AA289395, AA163534, AA144462, AA289076,  
W71442, AA518727, AA518719, AA709818, AA050538, AA388749, AA118690, AA162350,  
AA561275, W64450, W59418, AA189997, AI046928, AA821475, C87479, AA986343,  
AA798557, AA408805, AA542000, AI019224, AA547301, C87597, AA982987, AA797982,  
AA710289, AA960512, AA049036, AA739082, AA254552, AA271421, AA924012, AI010191,  
30 AA893247, AA900670, AA849965, AI010995, AA849510, AA850806.

SEQ ID NO: 453

35

Z83095, X99226, AL022170, AD000092, M34057, AC002563, AA455885, AA455887,  
AA322137, T35075, AA769930, R01230, AA827188, AA504834, T93623, R60950, Z40208,  
AA059249, AA056948, AA026612, AA255659, H64787, AA644129, AA131038, W03848,  
AA045593, W88936, AA935237, AA347403, AA299759, W03716, AA463485, R54894,  
40 AA343783, R51347, R06563, AA705176, H97169, AA428387, R60775, N41941, AI039282,  
AA748863, N55087, AA449716, AA953485, AA261890, AA916390, AA215566, AA448570,  
AA496433, AA768771, R24008, R52329, AA085178, AA521274, AA926771, AA611607,  
AA734758, AA038257, AA562655, AA137906, AA537656, AA183983, AA881930, AI007060,  
AA607220, AA610870, AA590687, AA097760, AA929616, AA414333, AA546731,  
45 AA717857, C77958, T26290, AA923936, AA818217, AA585881, AA849324, AA698914,  
AA819534, AA900108, C62635, AA567729, W16464, F19943, D24957.

SEQ ID NO: 454

5 Z83095, X99226, AF015720, AC004491, AD000092, AJ229041, AF020803, AA455887,  
AA455885, T35075, Z40208, AA644129, AA463485, AA326150, AA429596, AA699308,  
R07162, AA071065, AA830183, AA282097, AA765197, AA705568, AI052477, AA206839,  
AA322137, AA769930, AA736769, AA207089, R60950, Z45139, AA331966, AA333320,  
AA333042, AA337699, AA373228, AA758462, AA678235, AA927053, AA642465, F04204,  
R24008, R40966, AA521274, AA766823, R86112, N41941, R52534, AA721183, T24502,  
10 AA611607, AA038257, AA220520, AA171025, C81417, AA596090, AI007060, AA709887,  
AA919713, AA940172, AA052549, AA467017, AI010795, AA998153, AA966777, AA585881,  
AA923936, C62635, AA819534, AA900108, AA818217, R84205, T46224, H76960, C66418,  
D36526, AA849324, F19943, C65477, C62162, C61080, C60727.

15

SEQ ID NO: 455

20 AB002299, AC004224, X13329, L21502, U67466, Z17426, AC002068, AF008563, S75812,  
U32511, AE000865, AF029844, AF037119, AC004318, L21506, AB013898, U80953, Z38112,  
AE000738, Y09048, D21259, X74481, L02417, AC004653, Z69893, AF005383, Z81132,  
U86698, L04466, U94331, AC004810, AC001229, AC004072, AC002343, AB008264,  
AA493600, AA723996, AA853297, AA381531, N55525, AA627410, I'64706, N94447,  
M79081, AI042259, N53652, AA829990, AA280802, AA689429, AI027608, T03122,  
25 AA421306, AA644011, AA887216, W16779, AA126601, AA987191, AA757377, AA826566,  
AA426086, N76390, H38308, AA437148, AA757482, AA809224, H38316, AA283112,  
AA758267, R98945, N71722, AI018374, T93140, AA502767, AA779456, AA322933,  
AA581572, AA010188, H38309, M78340, H38498, Z74661, AA537969, AA793095,  
AA073083, AA030855, W33967, AA726370, AA060956, AA684147, AA546069, AA499463,  
30 AA272189, AA272102, AA207974, AA795998, AA561705, AA033155, W64274, AA895365,  
AA856149, AA797925, AA689951, AA645011, AA636189, AA553102, AA474521,  
AA238892, AA122947, W30514, AA989817, AA592443, AA986322, AA726859, AA718489,  
AA619395, AA611539, AA474876, AA250685, AA210112, AA166172, AA086700,  
AA032790, AA880240, AA710338, AA672032, AA656059, AA655728, AA542396,  
35 AA518796, AA450439, AA288803, AA198240, AA155012, AA140074, AA086655,  
AA068416, AA794462, AA789390, AA727210, AA692565, AA670613, AA623778,  
AA104727, AA989798, AA560549, AA560256, AA435097, AA242178, AA166480,  
AA138743, AA104888, W53189, W13203, AI049019, AA870051, AA821440, AA820026,  
AA792831, AA771112, AA727470, AA690610, AA655847, AA655681, AA560192,  
40 AA545993, AA543989, AA396471, AA276976, AA271239, AA154698, AA117175,  
AA117072, AA033090, AA000904, W64839, W50720, AA870063, AA656386, AA543626,  
AA212017, T21648, Z34200, AA842684, AI012393, AA965105, AA965100, AI013736,  
T00419, F14070, AA852055, D66739, N98037, AA037901, AA605834, AA675765,  
AA817511, AA697935, AA892562, N43435, AA440814, W63412, AA784200, T20467,  
45 T43072, N97262, AA650703, AA257585, N60216, T37345, AA598358, W99504, T45190,  
AA802187, AA550545, W06044, AA892049, AA042534, N82355, Z26399, T62417, R90184,



T14059, T45287, C74674, L38092, W99755, AA067394, W00304, N81434, W66347, H37329, T20660, AA740028, C73279, N52102, AA585945, T13851, F14361, D42984, AA900649, AA394913, C63596, AA990883, L33618, W63532, N65650, N96396, AA520592, AA011989, T46663, T04120, AA901777, W63070, AA439791, AA011983, AA057899, AI009831, T13811, 5 AA012415, AA965956, T04062.

---

SEQ ID NO: 456

10 AB002299, U27474, AL009029, AF067186, AB006704, AC005012, Z98755, Y13605, AC004760, U96629, U64858, Z74029, Z30192, AL008631, AB007646, AA608681, AA582845, AA640311, F20547, N67886, N67901, N24059, AA830972, W95887, AA976754, AA774596, AA213435, N58007, AA652125, H77550, AA630655, T70218, R00428, R40274, R45585, N35935, H82545, C00681, AA071400, AA251346, AA213727, T70308, AA278724, 15 AA369697, AA278230, T80885, W72678, N20927, W90539, AA054950, AA244010, AA808383, AA102675, AA335748, AA312192, AA610234, AA255947, AA335454, AA152996, AA958993, AA389038, C87378, AA501323, AA217575, AA266434, AA388650, AA763965, AA458000, AA204053, AA764035, AA285614, AA821488, AA072175, AA185538, AA545067, AA591058, AA492935, AA896210, AA959499, AA034622, 20 AA734999, AA537126, AA711168, AA168990, W42206, AA162285, AA212866, AA497691, W29509, AA104760, AA275807, AA285555, AA049208, AA796120, AA956668, AA143918, AA740021, D37758, AA698742, T09707, AA394829, D76289.

25 SEQ ID NO: 457

D63481, U77572, D83412, U97396, U82664, Z98762, D89216, X15723, U16362, M96362, AE000151, X01074, M80481, U84823, U90743, U84827, AF016052, U68536, X66370, AA614415, AA954810, AA908313, AA506437, AA131747, W19261, AA679753, AA962100, 30 AA514635, AA330885, AA465711, AA131835, AA355811, AA583508, AI016171, AA932378, AA641850, AA593807, W91980, AA442732, W23709, AA628013, AA115409, AA729980, AA161067, AI028279, AA659720, R54966, H21354, AA016013, AA527556, Z38258, T35406, AA953344, AA292109, T97386, AA622354, AA587909, W88796, AA946816, W72744, AA040910, AA203494, AA234649, AA456350, AA707062, AA983240, N86057, AA292089, 35 AA877552, R18589, W77923, AA479577, AJ003612, AA282342, AA995805, T07914, AA703208, AA736708, AA091752, T55828, W90263, AA448970, R73381, AA048686, AA792452, W84994, AA048691, AA020086, AA237631, W78466, W71946, AA792423, AA473361, AA199995, W91071, W62391, AA795909, AA612375, C88553, AA415416, AA619257, W53503, AA718881, AA420201, AA203843, AA656512, W64858, AA671197, 40 W62839, W87028, AA561767, W85515, AA073509, AA451121, AA794167, AA033370, AA286505, AA717320, AA117408, AA790330, AA597109, AA575704, AA943112, AI043972, AA685076, AA140851, C71852, AA264719, D22471, T43986, H21346, H76570, C49373, F15475, D23138, T43257.

45

SEQ ID NO: 458

M55905, M81055, J05130, AL010165, AL010134, X66418, AL010207, Z69717, AL010138, AC001657, AF022173, AF022174, AF039052, U40800, L09233, X77508, M26585, Z92546, AE000633, X57142, AA082620, H11826, H19387, AA337227, AA853459, T25984, AA332592, H07001, AA156521, AA625245, AA773718, T17473, T66752, T80865,  
5 AA485259, N28605, AA134157, AA161756, W53107, AI020103, AA930850, AA210237, AA125366, AA106479, W29507, AI019436, AA118935, AA522202, D19505, AA056913, H76074, H34871, AA979812, N97693, T76733, N81254, AI013495, AA051862, AA660836.

---

10

SEQ ID NO: 459

M55905, L42914, Z68010, X95001, AC003099, AC002432, U79202, U79222, AL008710, U03843, AC003664, U79210, U79197, U79198, U79206, U20539, Z49637, Z68105, U79205,  
15 U79230, U79221, U79195, AF040641, U79207, U79209, AC004407, Z35639, U79196, U79211, U58744, X66485, U79215, U79200, U79194, U79190, U79189, U79204, U79193, U67558, U79199, U79188, U79223, AA877904, AA127749, AA913955, AA804544, AA826095, T87869, T17472, AA156095, T66751, AA101130, AI027567, AA853458, H15839, H11749, AA783031, AA934605, H68911, T79599, AA496055, R46791, AA887922,  
20 AA994515, AA229696, R20752, AA442710, AA883256, AA229604, AA229914, T70290, AA844103, AA771780, AA625121, T64331, AA360123, AA548642, AA348782, R86247, R66056, AA017432, N50126, H81869, N54973, N54960, N35840, H82168, H87197, T81480, R55663, AA617516, AA254205, AA882250, AA260460, H32730, T01832, C84870, L19204, C90683, AI007765, D33678, C91282, C94196, AA605383, AA495344, C92524, AA202521,  
25 AA784907, AA141659, AA786226, AA056914, AA140887, AA955188, AI007696, AA899376, AA819171, C90256, N97890, AA550098, AI013107, C94204, C90028, C93742, AA540790, AA859332, C91045, AA850342, C69263, AA787439, AA141018, AI008748, C94422, AA694968, C92357, AA802406, AA540719, C94391, C65147, C66511, AA141665, AA695145.

30

SEQ ID NO: 460

AF027302, AC000391, L04607, Y16595, Y16594, D84222, X73636, Y07826, L57504, Z54240,  
35 AJ229043, AF015262, U59806, AE000732, U66677, C19005, R18615, R18617, F07369, R34905, F07368, T79967, Z45987, AA197172, H01848, N95669, AA128396, AA480130, AA618486, N50784, AA974394, R60973, R61758, T16566, H43185, AA528201, AA573889, AA926795, AA535806, R73032, AA557158, N26129, W16581, AA314079, R67879, AA135045, AA902734, R07590, H16141, AA133721, AA469203, AA144398, AA014138,  
40 AA636681, AA921438, AA404181, AA656533, AI049168, AA218241, AA511948, AA108112, AA492849, AA756210, W42007, AA636285, AA624596, W36780, AA245034, AA207589, AA174611, AA689676, W83305, C77498, AA832881, AA636776, AA959560, AA672735, H31746, AI013494, C89840, C25665, D49064, AA951690.

45

SEQ ID NO: 461

- AF027302, Z95113, U54796, AC002354, L00919, AJ002300, AJ002363, AC004752, AA237011, U66677, AA197173, AI032729, AA255836, AA085751, N66858, AA577295, AA548626, W90495, AI000514, AA682839, AA716406, R41589, W22243, W90494, T53078, AA188680, AA486482, AA454511, AA858021, AA480130, AA485752, C02340, AA490597, 5 Z41599, AA128396, AA593341, AA961984, R49296, F04921, R39338, T35869, Z29925, N95669, AA609022, AA490792, F03609, AA303320, AA663990, AA593333, AA366356, AA197172, T34547, AA400758, H01848, W86360, AA335935, AA927626, H66597, W46194, AA780826, AA332344, R59347, W38723, W26692, AA285267, N29146, AA618477, AA961739, AA777793, AA878908, N31374, AA868690, AA109093, C77114, AA840315, 10 AA546776, AA930348, AA600513, AA207880, AA167977, AA032959, AA408896, AA674210, AA107897, W98977, AA286263, AA014214, AA542008, AA445835, AA066189, AA919445, AA409068, AA122622, W46048, AA815626, AA250553, AA563136, AA290523, AA108325, AA690964, AA600538, AI050353, AI020698, AA683894, C74097, T00284, AI012041, C13814, AA142305, C62713, C63247, D86665, AA949984, AA899054, AA875470, 15 AA899258, C67535, AA494899, AI045445, AA818814, C60666.

SEQ ID NO: 462

- 20 M37197, U19891, U19892, U94785, Z49073, AP000014, AC004543, AC000127, X04385, U59224, AC000123, U42597, U52853, U68299, U52854, M27431, X04146, M25830, Z79639, AA765892, N83654, AA223308, AA100044, AA484511, AA283049, AA634187, AI016630, AA596750, AA063964, AA518499, AA798334, AA390729, AA550369, C57461, C59926, AA720137, C84168, C59547, AA900640, C11302, C30475, C56164, C34709, C37786, 25 AA680666, AA741977, D68525, AA532317, C66747, D22540, C13170, T26233, D41962, AA898310, AA945262, D22870, AA193900, H37703, D22772, N74796.

SEQ ID NO: 463

- 30 M37197, U19891, U19892, U96076, AC002089, AC002425, Z99497, X06660, AF031078, AC000100, AL022393, L03398, U67513, M65062, Z36099, Z67756, Z36100, L27559, M14625, X13978, D16217, AL022159, Z93403, AC004257, AF030876, AC002540, U15177, AL022242, M86258, M58650, U29612, M86248, M59499, AD001502, X62658, M18832, 35 Z81594, M33328, AF049132, N21190, AA830589, AA206030, N41412, AA927754, AA683615, AA830797, W45216, AA638996, AA223309, D25744, AA688007, AA453077, N27463, AA483722, AA885136, H82162, N77667, H97058, AA879468, AA625537, AA400667, AA361596, H97878, AA313982, AA902539, AA340994, AI034080, R60086, T10201, W73127, W39566, AA157717, AA173229, W02808, AA375528, AA984195, 40 AA975541, AA158262, AA730142, AA902492, F07252, R54534, H08119, T41351, AA314891, AA349595, AA481164, AA486737, AA749052, H63007, AA947809, N23955, AA349619, AA746367, AA353291, AA213407, N30796, AA381509, AA664796, H15136, AI014347, AI032612, AA205950, AA578916, AA515634, AA062897, F08007, F12643, H66912, W81528, AA219009, AA077941, AA489971, AA635118, AA723690, H60661, 45 N44806, N72051, AA076645, AA351205, N31614, AA172288, AA757945, AA777815, F10598, T74533, D81766, AA078118, H04045, AA296601, AA279682, W23621, W00419,

AA651775, F10263, AI020934, AA244944, AA261519, AA645838, AA217444, D21457,  
AA545085, D18448, AA032924, AA198196, AA530381, W67020, AA274602, AA920929,  
AA268726, AI005976, AA268697, AA796184, AA109091, AA185019, C85754, W09723,  
C86225, AA623936, AA139293, AA123010, AA409795, AA050771, AA073953, AA543396,  
5 AA510284, AA162198, AA638596, C88310, AA422716, AA444686, AA208964, AA199030,  
AA666956, AA062351, AA759789, AA646855, AA177594, W85544, AA620178, D41819,  
AA651243, C71327, C46102, AA944451, AI008218, C68136, AA661400, W06567, AI045300,  
AI037840, AA957219, W68853, AA957759, AA900572, AI043289, AA957867, N97880,  
AA660603, AI030349, C57109, AA739808, AA080600, C31257, AA438549, C43603, C31455,  
10 AA550642, C37617, T76806, C67987, C68602, C83972, AA944483, AA958151, AA979396,  
C31807, Z14871, AF027374, AA890857, T42905, AA898178, C13393, AA040961, AA908081,  
AA816642, AA898294, AI001356, N97686, AA897846, C57445, AA753750, C91366, C67659,  
Z26699, C23297, C12350, AA950008, AI007383.

15

SEQ ID NO: 464

D63481, U82671, AB007139, Z99121, M17088, X05684, U12015, Z94043, U45325, M58445,  
H91413, AI017857, D52929, W68794, T05285, AA312234, D54423, W25176, AA041515,  
20 N92514, D53356, AA133348, AA043311, R68178, D55604, N40357, T06774, AA442403,  
AA354144, W68768, M85461, R32250, AA405340, R56166, AA022972, AA100506, H39046,  
H14054, AA330451, AA312129, W64983, AA275740, AA637972, AA003008, AA475189,  
AA797079, AA791561, AA472419, W85599, AA919229, AA254085, AA404015, W91239,  
AA204542, W36054, AA184146, W84303, AA289140, AA178813, AA221956, AA032597,  
25 AA002410, W30539, AA170110, AI013875, AA949343, AA941639, AA494730, AA849864,  
AA949592.

SEQ ID NO: 465

30

D63481, U77572, D83412, D89216, X15723, Z98762, AE000151, U97396, X01074, U82664,  
U68536, U90743, AF016052, X66370, AA614415, AA954810, AA908313, AA506437,  
AA131747, W19261, AA679753, AA962100, AA514635, AA330885, AA465711, AA131835,  
AA355811, AA583508, AI016171, AA932378, AA593807, AA641850, AA953344, R54966,  
35 H21354, AA527556, AA659720, AA016013, AA161067, W23709, T35406, AA628013,  
W91980, AA729980, AA115409, AI028279, Z38258, AA442732, AA995805, T07914,  
W77923, AA282342, AA091752, AA736708, R73381, AA292109, T97386, AA587909,  
AA622354, AA946816, W88796, AA040910, AJ003612, AA203494, AA877552, AA983240,  
W72744, AA448970, AA292089, AA707062, N86057, AA479577, AA048686, AA792452,  
40 W84994, AA237631, AA048691, AA020086, W78466, W71946, AA792423, AA473361,  
AA199995, AA795909, AA612375, AA415416, W34713, C88553, AA943112, AI043972,  
AA685076, C71852, AA140851, T43986, D23138, T43257, D22471, H76570, C49373, F15475,  
AA264719.

45

SEQ ID NO: 466

M55643, M58603, L26267, S89033, S66656, M57999, L28117, L28118, Z47740, Z47737, Z47738, Z47739, Z47736, Z47735, Z47741, AF000241, M86930, D13719, L09064, AC004783, 5 X61123, Z84479, Z46266, D16367, U00111, Z70286, AC003663, S76638, X61498, AE001057, J05394, U63737, X85237, AC000721, AC002503, U09609, U91616, M91436, M24354, AF014008, X71125, X78454, AL021837, U60317, U39743, L13466, AA085529, W94220, T47296, W56849, T53902, N41629, N54459, AA480154, AA731956, F08166, N84413, T05322, AA331545, AA164749, T08600, F06451, W25646, W63975, AA276822, AA596791, 10 AA497639, AA981181, AA675005, AA061257, AI047975, AA832884, AA272062, AA509818, AA874464, W87199, AA003829, W70695, AA009052, AA124602, AA186000, AA567365, AA202061, AI044448, AA963796, AA696342, D33201, N96427, C82917, AA867896, AA867910, AA660206, Z47687, Z26818, AA802558, C83773, AA867941, C54606, C54343, AA556084, AA867919, Z18207, AA966839.

15

SEQ ID NO: 467

M58603, M55643, L26267, Z47737, S66656, S89033, M57999, L28117, Z47738, L28118, 20 Z47740, Z47739, Z47736, Z47735, M86930, D13719, AF000241, L09064, U00111, Z70286, Z46266, X61123, Z84479, D16367, U60317, AE001057, X61498, AL021837, U63737, S76638, U09609, X78454, M91436, U39743, M24354, AF014008, AA085529, W56849, AA731956, N54459, AA480154, T05322, H59244, AA116033, T31186, AA620651, H59290, AA383275, D61080, W63975, AA981181, AA963796, C54343, Z26818, AA802558, C54606, Z47687, 25 Z18207, AI044448, AA966839, D33201, N96427, AA696342.

SEQ ID NO: 468

30 Z47744, M58603, M55643, D17144, S89033, S66656, M57999, L26267, L28117, L28118, Z47743, D13719, M86930, AF000241, Z49288, AC000117, X06285, U04164, M35323, L26487, U65146, X89493, AF076275, AA604987, W60987, AA854753, AA744551, AA831993, AA451716, N29625, AA258085, AA134528, AA134618, AA213622, H49196, R26146, AA213748, AA932631, W92694, AA256615, AA688426, H49385, T77886, R30924, 35 T86845, R26360, AA576864, T53788, AA098834, H00310, H44239, H00357, Z36738, W72926, H44238, AA534057, W92693, W60355, T86858, R30875, AA921305, T77709, C18968, AA541794, AA625308, AA810086, D79816, AA083182, AA614109, AA991313, AA364984, AA687453, AA490741, AI041182, R94501, AA083294, AA577881, AA868298, AA878456, R48891, AA283812, AA283813, AA908775, N20359, AA635369, AA834129, 40 AA873006, W44235, AA241119, AA120684, AA823082, AA120663, AA111026, AA739345, AA198339, W71113, AA231564, AA414667, AA220845, AA606399, AI020169, AI048311, AA170325, AA414143, AA290108, AA547154, AA438002, AA388801, AA469620, AA547484, AA189513, AA413923, AA062319, AA681268, AA414697, AA717322, AA681509, W34058, AA290098, AA058216, AA087236, AA684076, AI020159, AA939993, 45 AA119778, AA178268, AA414353, AA210039, AA145095, C85301, AA858801, AI011845, C91044, C94358, AA875000, N82720, AA799993, H35157.

SEQ ID NO: 469

Z47744, M58603, M55643, D17144, S66656, S89033, M57999, L26267, L28117, L28118,  
5 Y15994, Z49288, AC000117, U65146, X89493, AF076275, U04164, M35323, X06285,  
~~L26487, AA604987, W60987, AA744551, AA854753, AA451716, AA831993, N29625,~~  
AA134528, H49196, AA213622, R26146, AA258085, AA932631, W92694, AA213748,  
AA256615, AA688426, AA134618, H49385, R30924, T77886, R26360, T86845, T53788,  
AA576864, H00310, H44239, H44238, W72926, AA098834, Z36738, AA534057, W60355,  
10 H00357, W92693, T86858, R30875, AA921305, AA541794, AA780367, T86654, AA625308,  
AA577881, AA687453, AI041182, AA364984, AA868298, AA878456, R94501, AA283813,  
AA725586, AA908775, R48891, AA083294, AA834129, N20359, AA873006, D79816,  
AA614109, AA635369, AA810086, AA490741, AA991313, AA283812, AA083182,  
AA120684, AA241119, W44235, AA823082, AA120663, AA739345, W71113, AI020169,  
15 AA220845, AA606399, AA231564, AA414667, AA111026, AA858801, AI011845, C94358,  
N82720, H35157, AA799993, C91044, AA875000.

SEQ ID NO: 470

20 M58603, M55643, L26267, S89033, S66656, M57999, L28117, L28118, Z47740, Z47738,  
Z47739, Z47741, AF000241, M86930, D13719, L09064, AC004783, Z46266, Z84479, Z97876,  
D16367, U00111, J05394, U09609, X85237, M91436, U91616, AC002503, S76638, AC000721,  
X61498, AC004997, AE001057, L13466, M24354, X71125, AA085529, W94220, T47296,  
25 T53902, N41629, W25646, N84413, AA164749, F08166, F06451, T08600, AA331545,  
AA507472, AA701348, AA767883, AA648492, H17207, H59290, AA558376, AA677464,  
R80854, AA206682, D61080, R34891, H59244, W60568, AA383275, AA357089, U66687,  
AA987746, H60893, AA420654, W63975, AA276822, AA596791, AA497639, AI047975,  
AA675005, AA832884, AA124602, AA003829, AA874464, AA272062, W87199, AA509818,  
30 AA009052, AA186000, W70695, AA567365, AA202061, N96427, AA867896, AA660206,  
AA867910, C54343, C82917, Z47687, AA867919, C54606, AA556084, Z18207, C83773,  
AA867941, AI044448, D33201.

35 SEQ ID NO: 471

Z47744, M58603, M55643, D17144, S89033, S66656, M57999, L26267, L28117, L28118,  
Z47743, M86930, D13719, AF000241, Z49288, AC000117, U65146, X89493, U04164,  
M35323, X06285, L26487, AF076275, AA604987, W60987, AA258085, AA744551,  
40 AA854753, AA831993, AA451716, N29625, AA134618, H49196, AA134528, AA213622,  
R26146, AA213748, AA932631, W92694, AA256615, AA688426, H49385, R30924, R26360,  
T77886, T86845, AA098834, AA576864, T53788, H00310, H00357, H44239, Z36738, H44238,  
W72926, W92693, W60355, AA534057, T86858, C18968, R30875, T77709, AA921305,  
AA780367, AA625308, AA541794, AA577881, AA364984, AI041182, R94501, AA283813,  
45 AA868298, R48891, AA878456, AA908775, N20359, AA083294, D79816, AA614109,  
AA834129, AA490741, AA873006, AA635369, AA283812, AA810086, AA991313,

AA083182, AA687453, AA241119, AA823082, AA120684, AA120663, W44235, AA220845, W71113, AI020169, AA739345, AA414667, AA198339, AA231564, AA111026, AA606399, AA858801, AI011845, H35157, AA875000, N82720, AA799993, C91044, C94358.

5

---

SEQ ID NO: 472

AA085529, W56849, W94220, AA480154, N54459, AA731956, T05322, H59244, H59290, AA383275, D61080, T31186, AA116033, AA620651, AA085529, W56849, W94220,  
10 AA480154, N54459, AA731956, T05322, H59244, H59290, AA383275, D61080, T31186, AA116033, AA620651, W63975, AA981181, AA061257, Z47687, Z18207, D33201, AI044448, D68391, AA696342, AA963796, C54606, AA802558, Z26818, AA966839, C54343, N96427.

15 SEQ ID NO: 473

Z47744, M58603, M55643, D17144, S66656, M57999, S89033, L26267, L28117, L28118, Z49288, AC000117, L26487, U65146, X89493, AF076275, U04164, M35323, X06285, AF019074, AB009464, AA604987, W60987, AA744551, AA854753, AA831993, AA451716,  
20 N29625, AA134528, AA258085, H49196, AA213622, R26146, AA134618, AA932631, W92694, AA256615, AA213748, AA688426, H49385, R30924, T77886, R26360, T86845, T53788, H00310, AA576864, AA098834, H44239, W72926, H44238, H00357, Z36738, AA534057, W92693, W60355, T86858, R30875, AA921305, AA780367, AA625308, AA541794, AA364984, AA490741, AA687453, AA283813, AA577881, AA083294,  
25 AA878456, R94501, R48891, AA908775, H10173, AA834129, AA868298, T75200, AA614109, AA635369, AI041182, AA873006, N20359, D79816, AA083182, AA283812, AA810086, AA991313, AA402834, AA241119, AA120684, W44235, AA823082, AA120663, AI020169, W71113, AA111026, AA220845, AA606399, AA198339, AA231564, AA414667, AA858801, AI011845, C94358, AI044858, AA817922, AA875000, AA817920, AA799993,  
30 H35157, AI007661, N82720, AA924570, AA784644, C91044, AA851877, AA891276.

SEQ ID NO: 474

U23731, AL021408, Z81008, AF000119, AF032896, AB006706, AE000562, Z72884, U07562, U38538, L20297, AC000108, AA224461, AA206137, AA156076, AA311528, AA224287, AA130324, AA158181, AA338632, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, AA356336, AA336684, AA157406, N84223, H14048, H70100, AA621821, AA655041, AA511182, AA098490, AA795478, AA003828, AA982787, AA990002,  
40 AA049380, AA265250, AA518486, W53950, AA059526, AA530519, AA475369, AA544829, W98895, C19435, AA801990, T24344, AA802780, AA802033, C93914, C84010, AA787755, C91549, AA532229, C83842, C90225, C89939, C90623, C93063, C94006, C90912, AA698487, C89776, AA998709, AA966628, C91481, AA966780, T88561, AA950350, C92923, AA660951, AA850534, Z25995, AA202149, C84032.

45

SEQ ID NO: 475

D84484, Z68285, Z48230, M36868, X93204, X75356, Z59528, AL022401, AF036688,  
AA224462, W68083, AA155991, AA206138, AA042859, AA845618, AA846689, AA923669,  
5 AA156359, AA180086, AA130325, AA722400, N24090, AA535987, AA157528, AA157248,  
~~N94103, AA622128, AA588309, AA632045, AA125745, AA983663, AA916531, AA682611,~~  
W73348, AA136323, C74980, AA620380, AA136376, H18030, AA044410, D29077, N54857,  
H62216, N69283, AA039772, AA494394, R97615, R52831, AA524141, AA329465, T47023,  
R66459, AA136236, N53084, AA704526, AA807528, AA806739, H71338, W73468, T53532,  
10 Z39137, H78375, H16390, AA125866, H62313, AA136290, F04995, AA626812, AA224185,  
H09265, F04133, N72633, AA688174, T32098, W88884, H26244, AA025451, T47022,  
AA489215, AA204982, T53531, AA779662, AA541312, AA025965, H71390, AA770035,  
T31901, H95364, D57620, D57777, C16474, T53629, T53628, AA771817, AA229797,  
N47003, AA112758, AA985365, AA737183, C78301, AA738630, W08709, AA000380,  
15 AA183515, AA186150, C85200, W82711, AA178363, AA472734, AA120443, AA152752,  
AA067726, AA589139, AA617490, AA560182, AA137437, AA103614, AA052582,  
AA116656, AA791261, AA073097, AA259443, AA896587, AA795882, AA914479,  
AA646014, AA509451, AA033329, AA175895, AA986715, AA673448, AA717649,  
AA544011, AA389170, AA764535, AA855220, AA920032, AA987066, AA924642, D85577,  
20 AA925459, AA892107, AI012713, AI007691, H31397, AA996903, H32650, AA957220,  
D39275, C82794, C83650, C10185, D72728, D71532, D69161, D65762, T02162, AA950618,  
M79950, R05112, C36830, C10223, C25346, D65709, M80069, M79765, D72749, D70625,  
R03849, D72636, M80068, AA933355, D72047, M79981, D68900, AA786772, D71395,  
AA627005, M79695, R04619, AA949575, AA786095, D72004, D69424, AA942258, R62015,  
25 D72699, AA661114, D66659, D66743, R04006, M89127, T14566, AA495500, AA841347,  
AI018906, AI018967, AI018971, AI018983, AI018988, C08459, AA597677, AA550586,  
U92770, AF051113, AA739994, AA819088, AI018933, AI018997, C45151, AA840843,  
AI018970, T01777, T14365, AA525607, C30437, C34598, C54120, C55452, AA682177,  
AA728096, AI018932, AA528928, AI018973, U92773, C49170, AA840851, AA917246,  
30 AA931026, AA999328, AI018982, AA517952.

SEQ ID NO: 476

AA846689, AA845618, AA923669, W68083, AA224462, AA156359, AA206138, AA535987,  
35 AA155991, AA722400, AA157528, AA157248, AA983663, AA622128, AA588309,  
AA632045, AA682611, AA130325, AA620380, N94103, AA916531, W73348, C74980,  
AA807528, AA806739, N24090, AA180086, AA044410, N54857, AA042859, T47023,  
D29077, AA494394, AA125745, AA524141, AA489215, AA688174, AA704526, H18030,  
R52831, AA541312, T53532, H71338, R66459, AA039772, H78375, AA329465, AA025451,  
40 N53084, H16390, AA136323, AA136376, N69283.

SEQ ID NO: 477

45 U23731, Z81008, AF036577, AC000108, AF032896, AB006706, Z72884, AE000562, U38538,  
U07562, L20297, AF000119, AA224461, AA206137, AA156076, AA311528, AA224287,



AA130324, AA158181, AA338632, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, AA356336, AA336684, AA157406, N84223, H25390, T34532, AA362575, AA352967, H70100, AA621821, AA310538, H14048, AA655041, AA511182, AA098490, AA795478, AA530519, W53950, AA982787, AA059526, W98895, AA049380, AA003828, 5 AA475369, AA544829, AA990002, AA265250, AA518486, C19435, H34672, AA999071, AA801990, AA802780, T24344, W06542.

---

SEQ ID NO: 478

10

D84484, AL023534, AC003052, AF026211, D90910, U23517, Z82287, AB010692, Z97053, U52112, Z68342, X03012, AC004740, W88792, N51697, AA535621, AA629359, AA580794, AA804326, AA917940, AA864355, AA862797, AA906006, R40383, AA371044, AA013401, AA782650, AA224185, AA770035, AA626812, H71390, H25390, AA779662, W73468, 15 R97615, AA309562, AA129699, AA128863, T79976, F08443, R20194, R56563, F06396, AA279039, AA485328, H05851, AA809792, AA863400, AA515855, N35180, AA255896, AA324622, AA607994, AA710794, AA929608, AA611806, AA088978, AA168454, C85084, AA266859, AA450504, AA137437, AA052582, AA589139, AA103614, AA560854, AA617490, AA116656, AA008360, AA120443, AA152752, AA000380, AA571466, 20 AA198469, AA797491, AA655766, AA546928, AA510411, W42224, AA944833, AI009004, AA955691, AA996686, C83650, C82794, C65116, AA735461, T00363, H33817, AA538872, C06579, AA536338, T23136, C06991, C82752, C83608.

25 SEQ ID NO: 479

U23731, Z81008, L20297, U07562, Z72884, U38538, AB006706, AF000119, AC000108, AE000562, AA224461, AA206137, AA156076, AA311528, AA224287, AA130324, AA338632, AA158181, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, 30 AA356336, AA336684, AA157406, N84223, H70100, AA621821, H14048, AA655041, AA511182, AA098490, AA795478, AA544829, AA265250, AA475369, AA982787, AA990002, C19435, T24344, C89776, AA787755, AA802033, AA998709, C92923, AA850534, C91481, AA966628, C84032, C90912, C91549, C93063, AA532229, C89939, AA202149, T88561, Z25995, C94006, C84010, AA660951, AA966780, AA698487, C83842, 35 C93914, C90623, C90225, AA950350.

## SEQ ID NO: 480

D84484, AL023534, X03012, AC004740, U23517, Z97053, Z82287, AF026211, Z68342, D90910, AB010692, AC003052, W88792, N51697, AA629359, AA580794, AA535621, AA804326, AA917940, AA864355, AA862797, AA906006, R40383, AA371044, AA013401, AA782650, AA224185, H25390, AA129699, W88884, AA128863, F08443, R20194, T79976, AA482484, R56563, AA279039, F06396, AA255896, AA324622, AA384509, AA809792, 45 H05851, AA863400, AA515855, N35180, AA607994, AA710794, AA611806, AA929608, AA088978, AA168454, AA266859, C85084, AA000380, AA450504, AA198469, AA797491, AA681253, AA510411, AA546928, W42224, AA955691, AA944833, AI009004, AA996686, C65116, AA735461, T00363, AA536338, AA952087, C69126, AA538872, T23136, C65558, C12294, C82752, C83608, C06991, C06579.

## SEQ ID NO: 481

X83973, AC004585, M92280, U32712, U61958, L25598, D63880, M31229, AC004002,  
5 X67320, U46596, X60325, U73644, AC002396, X89870, U72499, R62169, AA206573,  
H04110, AA135261, AA025528, AA218774, U69197, T31173, H17179, T31172, W28253,  
T74327, R95466, T06248, AA191685, AA209495, AA285302, T11250, T10730, AA877091,  
T30286, AA813637, AA700898, AA918411, AA890493, U25927, AA156216, AA240112,  
AA270608, AA896810, AA153656, AA106767, AA003959, AA562089, AA104976, W82776,  
10 AA008221, AI007191, AA797994, AA396048, AA003400, AI034962, AA597427.

## SEQ ID NO: 482

15 X83973, AC004585, D63880, M31229, L25598, X67320, U32712, AC004002, U46596,  
X89870, AA218774, AA135261, U69197, T31173, T31172, H17179, AA025528, W28253,  
T74327, R95466, T06248, AA191685, AA209495, AA285302, H04110, R62169, AA813637,  
AA700898, AA890493, AA918411, U25927, AA156216, AA459760, D54000, N89478,  
Z44636, R60410, F08390, N58115, AA431856, W07774, AA114203, R20232, D52808,  
20 Z43059, Z43991, AA311575, AA405526, AA459219, H48630, N31359, F00826, AA305192,  
AA497122, AA448367, AA206301, T74440, R19619, H07059, F12465, W47095, AA488227,  
W31424, AA740349, W47600, AA240112, AA270608, AA153656, AA562089, W82776,  
AA104976, AA003400, AI007191, AA396048, AA797994, AA008221, AI013905, AA943884,  
H34847, AA955449, AA951973, AA818406, C19895, F14612, C35942, C27959, C83493,  
25 C82637, AA848886, T23112, AA997204, C74327, AA180645, C07631, R03468, AI013797.

## SEQ ID NO: 483

30 AC004100, U69197, AA889669, AA609322, AA846829, AA157806, AA910279, H16250,  
AA191622, AA594141, AA034036, H11397, N45294, AA907298, N71642, AI017580, N22707,  
T15527, T89105, AA858303, AA931425, AA847184, AA658226, AA903241, AA160287,  
AA074277, AA610333, N51259, AA427905, AA541311, H96787, AA669068, AA206434,  
F10050, AA135198, AA135111, AA207148, AA135106, AA904093, AA747271, N67513,  
35 N66837, AA593048, Z41528, AA043331, T10553, AA578579, T11277, D20243, AA620459,  
AA741223, T94064, AA886271, AA704085, AA588415, AA043332, AA613110, R23931,  
AA090084, R00190, N31181, AA011069, AA283910, AA011068, D12113, AA281890,  
AA262686, T51762, AA020898, AA479483, AA479486, N98740, AA469362, AA599610,  
AA122290, AA083241, AA344624, AA980870, AA189964, AA924040, AA957243,  
40 AA494753, AA041007, C94155, F15350, AA395308, C23188, AA944028, AI029279,  
AA924029, AA585835, N65610.

## SEQ ID NO: 484

45 AC004782, U36309, AB004665, AB004664, AF000266, AL008987, X82329, Z71533, X96722,  
U03376, L76927, Z81369, AA307147, W52616, R60274, H15631, AA192581, H17000,  
N70985, AA682302, AA229888, AA584468, AA188677, AA077563, AA632513, W52931,  
AA227128, R15324, AA073776, AA120131, AA543131, W75369, AA672153, AA797354,

AA171349, AA636861, AA107512, AA611943, AA529574, AA073101, C89406, C88751,  
AA155335, AA276545, AA794735, W91498, W41207, AA756021, AA396808, AA058091,  
AA920575, AA275684, AA198148, AI011366, AA433363, AA231846, W00769, C48684,  
T44800, C25954, N96608, Z37612, T22534, H34007, C62867, T88218, AA253580, AA067527,  
5 AA390238, T88530, C93064, N38560, C71320, D37215, T44514, AA224662, T42682.

SEQ ID NO: 485

---

10 U96150, AC004770, AJ000382, U43414, AE000793, D11352, Y15994, D45210, U56862,  
X94354, L36316, Z81057, D25216, AA416742, H17001, R60782, H15571, AA872017,  
D78731, AA872016, AA533831, AA486536, AA112946, AA458173, AA985699, AA438072,  
AA799270, AA073146, AA921642, AA901077, H32499, AA542582, N96729, D22134,  
Z26528, AA395112, AA586078, D41457, AA193962, AA915808, AA193969.

15

SEQ ID NO: 486

U48288, AL021447, L22355, AC002463, AB015478, Z46937, J00778, AC001226, AC004253,  
20 U24122, D90905, U61944, AL021066, AC003103, Y14023, U81834, AL023713, AA100515,  
AA836885, AA640759, AA773258, R38812, N27694, F04149, AI032861, AA019351, Z40684,  
H16394, AA011058, AA256783, AA722016, H84335, AA813571, H05979, AA857838,  
AA019363, R85734, H97233, N26688, AA483155, R42174, H84905, AA903721, AA290683,  
AA056241, AA018567, AA885127, AA190265, AA276751, AA273801, AA153214, AI020109,  
25 AA119459, AA999641, AA509268, AA109389, AA161638, AA508962, AA123529, C91548,  
D41056, C92760, D41219, AA161664, C25804, C23834, AA114518, D41055, R90293,  
AA395672, AA753858, AA917236, C41854, C64350, H36059, T75869, AA550210, C92570,

30 SEQ ID NO: 487

AC002073, AC002997, U82083, Z82217, AC002367, AC003080, U82213, AC004776,  
AB000877, AC002375, AB000882, AF029061, AC005201, L43411, Z93023, AC002496,  
AC002057, AC003667, U03115, AC003101, U66060, M96851, U96629, AC003957,  
35 AC000118, AF047825, Z70280, AP000021, Z92844, AC004112, AF030453, M63796, U14574,  
AC000122, AL008631, U14573, AL008627, AP000015, AC002133, AC004598, Z68273,  
AC004778, X54486, AC002454, Z68192, AF039907, AL022158, AC005257, AL031005,  
Z97989, AF001550, AC002036, AC003098, AC005175, AF003529, AC003690, AF015725,  
AC004790, Z98750, AC000378, AC003044, AC004593, Z79996, AC002072, Z81315,  
40 AC003657, Z82097, AL008635, AP000036, Z82246, AL008630, AL022322, AC002456,  
AC002476, AF053356, L47234, AL021393, AC004262, AC004692, U91322, U57833,  
AC004552, AP000038, AC004752, U29953, AL008720, AC004076, U61224, AF064863,  
AF070718, AC003037, AC002401, L78833, AC004417, U61238, AC004074, Z68756,  
AD000812, AC004785, D00591, AA837616, AA251226, AA835824, AA748600, AA309354,  
45 T47389, AA084609, R98218, AA225273, AA451901, H29914, AA563770, AA601237,  
AA599063, AA492114, AA502098, AA410788, AA228778, AA767297, AA594043, AI049630,  
AA664126, AA573213, AA058768, AA297666, AA176604, W02749, AA452887, AA581247,  
AA621381, AA503298, AA550850, AA515728, AA492105, AA405726, AA482928,  
AA877992, AA299589, AA525753, AA486277, AA662590, AA610381, AA984187,

- AA626040, AA602906, AA622801, AA284247, AI049676, R64617, AA507822, AA984920, AA837686, AA846923, AA878431, AA302661, AA593471, H43771, AA995373, F13749, H63066, AA838091, AA904211, AA666295, AA251356, AA541532, N64587, AA077667, AA581895, AA668915, T93109, AA650365, AA714999, AA668896, AA018105, AA302660, 5 AA946848, T09219, AA670132, AA714605, AA586667, AA548610, AA365586, AA516045, T50061, H64579, AA553409, AA582554, N73060, AA890060, H84003, AA772704, AA584765, T71936, F01666, AA502991, AA669054, AA487569, F03672, AA678950, AA676971, AA823826, C88111, W64166, AA863851, AA415875, AA501297, AA517646, AA516629, AA516955, AA517461, AA501217, AA261001, C88193, AA474026, W61986, 10 W51648, W64884, AA501128, C87864, AI042727, AA080273, W62276, W71684, W71517, C87922, AA465901, AI046782, C86532, AA867834, AI006950, AA920903, AA792326, AA260746, W40894, AA237411, AA462161, AA501226, C87438, AA476035, AA645522, AA407778, AA607939, W13408, W77222, AA518813, W64881, AA087147, W62377, AA683837, AA986140, AA177354, AA475815, W12097, C76778, C76558, AA152830, 15 AA684275, C76554, AA387138, AA671993, AA821458, AA921291, AA200956, AA619556, AA863761, AA270734, AA065758, AA880006, C76781, AA915628, W91721, AI042721, W62885, AA710415, AA856419, W41419, AA116250, AA501262, AA071830, AA215022, AA624943, AA177982, AA275969, AA738645, AA794525, AI036873, AA689887, R75183, AA177980, AA122637, AA268771, AA562623, AA138821, AI044039, Z69957, AA550283, 20 H39426, W06387, H39330, W06750, AF064463, AA107123, AA799804, AA850419, AA923995, AA799820, H39389, H39328, AA996668, AA963620, AI008240, AA859703, H39321, H32137, AA997451, AA701791, D85580, AA893225, AA819889, AA943496, AA997061, AI030545, AA892475, AA956017, AA943260, AA891543, D35620, AA056877, C61478, C70634, H34360, AI028846, C06795, C23765, AA893817, C71265, AA943777, 25 AI010688, D26633, AI045509, AA859161, AA538694, AA817007, AA819620, AI009750, AI013243, AA899195, AI008251, AA901012, AA819167, AA859997, AI029425, AA893903, AA945963, AA850360, AA943529, H33833, AA532283, AA851329, AA964505, AA943958, AA801439, H39351, AA925077, AA955715, AA956915, AA944747, H31386, AA550467, AA800630, AA800631, AA818477, AI009861. 30

SEQ ID NO: 488

- X79828, U29498, X60156, M27878, AL022165, U28322, L32162, D31763, D89928, U28687, 35 U38979, X71623, L76568, X92715, Z68344, L08442, AC004262, U56732, AF028840, AF027513, Y00850, U66561, U46190, U09366, AF003540, Z30174, AC000378, AL021918, X52332, U47104, D50419, X60155, M61870, AC003002, X60152, AC004104, L33260, L77247, Z96240, Z93096, U80440, M29580, AC000113, D10632, X60154, X78927, U37263, U46188, L75847, L81686, AF011573, M67509, U46187, U46189, AC003006, AC003673, 40 AF052054, Y07759, AC004696, AC004017, AC003005, U90932, U90935, U46186, Z21707, L81865, U37251, U29503, AC003682, AA393862, AA903775, AA332448, H30708, AA333524, AA167752, AA083688, AA628082, AA534387, AA651748, AA295628, N25521, AA412491, AA196895, AA481082, W39561, AA312592, AI016262, AA448488, H19015, AA446808, AA412659, AA171328, AA170968, AA517408, W97817, AA427249, AA727092, 45 AI050494, AI036616, AI048993, AA881067, AA980285, AA051182, AA510419, AA896560, AI046649, AA674333, AA956996, AA999114, AA799834, F23057, AA945558, T42664, T41769, AA817734, C08312, AA417507, C36594, C39191, C57208, C07961, AA542664, D72647, AA892106, C07405, AA849949.

## SEQ ID NO: 489

AC004587, Z95979, AC004791, Z93016, AC003108, Y10196, AC004149, AC002350,  
AC004645, AC003101, AA771779, N36929, AA342301, AA091511, T08758, AI042519,  
5 AI003444, AA501297, W61986, W51648, C87922, C88111, C86532, AA823826, AA516629,  
AA517646, AA516955, AA550283, AI008183, AA894110, H39389, H39328, W06387,  
AA963624, AA874831, AA942712, AI008350, AA859194, D86779.

## 10 SEQ ID NO: 490

X83973, AC004585, U32712, AC004002, X67320, M31229, M92280, L25598, D63880,  
X60325, X89870, AC002396, U46596, U72499, AA135261, AA025528, H04110, R62169,  
AA206573, AA191685, AA209495, AA218774, T31173, H17179, U69197, T74327,  
15 AA813637, AA700898, W28253, AA918411, U25927, AA890493, AA156216, N31359,  
AA305192, T74440, Z44636, AA431856, AA497122, R19619, W31424, AI038357, W47095,  
H48630, W47600, AA740349, N89478, D54000, Z43059, AA114203, H92941, Z43991,  
F12465, W07774, AA488227, R60410, AA206301, AA448367, H07059, N58115, AA311575,  
AA405526, D52808, F08390, AA459219, R20232, N72283, F00826, AA270608, AA896810,  
20 AA240112, AA153656, W82776, AA104976, AA562089, AA396048, AI007191, AA797994,  
AI034962, C50857, AA901553, D75642, C49624, C50401, AA950450, AA940795, T00343,  
AA951973, C35942, C45911, C83493, C82637, AA951458, M80085.

## 25 SEQ ID NO: 491

AF003386, AC004100, AA594141, U69197, AA889669, AA157806, AA846829, AA609322,  
N45294, AA191622, H16250, AA910279, AA034036, H11397, AI017580, AA907298, T15527,  
N71642, N22707, AA858303, AA931425, T89105, AA847184, AA658226, AA903241,  
30 AA160287, AA074277, N51259, AA610333, AA427905, AA541311, H96787, AA206434,  
AA669068, AA135198, AA135111, AA207148, F10050, AA135106, N66837, N67513,  
AA747271, AA904093, AA593048, Z41528, AA578579, AA043331, T10553, T11277,  
D20243, T94064, AA620459, AA741223, AA886271, AA704085, AA588415, AA043332,  
AA613110, R23931, AA090084, R00190, N31181, AA216135, D12113, AA281890,  
35 AA011069, AA283910, AA011068, AA262686, H38971, AA344624, AA677326, H42125,  
R25075, AA527445, AA846250, C00804, T51762, AA599610, T25862, AA469362,  
AA479486, AA991236, AI023397, AA020898, AA122290, AA161131, R95433, AA479483,  
AA677307, H23454, AA083241, AI032960, AA980870, AA667323, C85792, AA189964,  
AA763659, W64912, AA924040, AA957243, C57088, D65799, AA924029, AA494753,  
40 C53054, C94155, F15350, C56060, AA859150, AI045999, C23188, AI029279, AA891808,  
N65610, AA391396, AA892687, AA585835, AA395308, C68374, C68890, AA944028.

## SEQ ID NO: 492

45

X83973, AC004002, U32712, U61958, M92280, L25598, X60325, AC002396, U72499,  
X89870, R62169, AA206573, H04110, AA135261, AA025528, AA191685, AA209495,  
T11250, T10730, AA877091, T30286, AA890493, AA918411, AA156216, W31424,  
AA311575, AA896810, AA270608, AA003959, AA106767, W82776, AA562089, AA104976,

AI007191, AA396048, AA597427, AI034962.

SEQ ID NO: 493

5

D50310, Z71630, U05954, AF051690, Z71629, Z21504, X12448, X64712, AF069716, U73107, M83179, X55390, Z38015, L33838, Z47069, AC005149, AA703243, AI018633, AA573290, AA910671, AA593789, AA205570, AA629751, AA664102, AA846727, AA218918,

---

AA434521, AA664175, AA595249, AA053839, AA215707, AA521260, AA496420,

10 AA604363, AA053834, AA188001, AA443651, N30602, AA525154, AA869591, AA273535, AA870443, AA869420, AA636862, W41289, W53234, AA615508, W71646, AA879848, AA794632, AA260499, AI050464, AA050559, AA682145, AA270786, AA833452, W83977, W62085, AA657275, AA032813, AA670695, AA237743, AA286476, AA562003, AI046124, R47167, AA685568, AA567879, H33765, AA686492, AA202312, AA264735, AA441475,  
15 H35716, C26045, AI001296, AA538750, AA246371, AA391338, AA440321, AA567072, R04548.

SEQ ID NO: 494

20

S45828, X15209, X15750, X62880, M91452, M91451, AC004356, Z60755, Z75208, AA830609, AA379393, W92192, N26739, AA826782, AA513371, AA843735, AA312811, AA886891, AI051222, AA083024, AA678449, AA583756, AA081892, AA993208, AA872909, N75138, H68272, AA183474, AA590863, AA422807, AA824874, D34645.

25

SEQ ID NO: 495

M77197, AB006701, U43491, Z74911, Z73899, U50068, Z50859, Z74912, U41765, M83665,  
30 AF044387, AF044392, AB013389, U69551, Z49912, AL021766, AB009055, U00040, AB004538, Z69660, AF041426, X62534, AF007544, AF044388, AC004080, AA425317, AA683559, N59179, AA496964, AA421774, AA463691, AA732495, AA425476, AA253038, AA253092, AA662003, AA490562, N90356, AA551630, AA830448, R98286, AA431379, AA091995, AA031701, AA043761, R96229, AA166980, R43145, R56119, AI003139,  
35 AA191594, AA346169, AA813494, R20553, N54035, AA719828, H81379, N64011, W86389, AA887501, AA779217, F09611, AA973573, H99275, N39567, AA219621, N50991, AA992514, H05031, C86289, AA958839, AA666873, AA549530, AA717257, AA543538, D18482, AA466518, AA268389, AA423231, AA920513, AA821455, AA168433, AA067899, AA266880, AA914284, AA944030, AA531990, T37874, AA849553, C90208, C54137,  
40 AI011413, D34422, D43403, C94424, C90924, C25657, AI008776, C93862, C92799, AA435480, C89648, C92327, D33646, AI008076, C89855, C92777, AA123611, T00139, C92804, AA549950.

45

SEQ ID NO: 496

U44731, M81128, M55542, M55543, M55544, M63961, M80367, X92112, U73641, AC002528, U80955, M21494, AA317362, AA564268, N88929, AA158924, W32064,

- AA305909, AA100063, AA354725, AA424070, AA296543, AA044192, AA873192, H30148, AA311108, AA020729, AA001029, AA346038, AA181375, AA180017, F19272, AA011006, AA178935, AA216124, AA211749, F22790, AA179247, AA176349, AA100433, F22155, F19355, F18872, AA977460, F22796, F20284, F20425, AA878690, AA856166, AA921455, 5 AA122936, AA880099, AA240404, AA709608, AA107742, AA218234, AA061741, AA222398, AA217704, AA990499, AA217738, AA717634, AA823282, AA204474, AA288216, AA098568, AA538440, AA870562, W71884, AA098205, AA915500, AA008041, AA008046, AA222205, AA880120, AA174774, AA822137, AA589084, F14828, F14838, AI011419, C41769, T09530, C60180, D66790, D66581, C71757, C28722, D65511, D65910, 10 D66300, C49281, D65830, C29182, AA246802, L38527, C10192.

SEQ ID NO: 497

- 15 U44731, M81128, M55543, M63961, M55544, AC002528, Z78141, J02940, U66047, M80367, M94362, X97986, U66083, M22403, AL022117, M55542, U12313, U96409, N88929, AA564268, AA317362, AA164464, AA471169, AA044192, AA044017, AA775579, AI041248, AA610352, AA486901, T96044, AA720926, H10090, AA486849, AA846414, AA856166, AA921455, AA107742, AA218234, AA222398, AA061741, AA003859, AA098205, 20 AA098568, AA823282, AA538440, AA870562, AA915500, AI011419, C60180, T09530, D66790, D66300, D65910, D65830, C10192, D66581, D65511, AA536383, AA263187, AA439901, AA392881, AA696901, AA816944, AA817624, AA390654, C49069, C48177, AA201668, D35415, AA540403, AA264017, AA978840.

25

SEQ ID NO: 498

- AC004242, AC004448, Z54073, Z76735, AC002463, U91328, L81878, U96054, U96061, U96050, AC003685, N27177, F10104, T88944, AA837803, T53321, N93216, AA843865, 30 AA424412, AA424458, AA838754, AA211589, AA015818, H86776, AA158925, AA832265, AA418333, AA017326, AA240404, AA189236, AA543396, AA920341, AA003062, AA874548, AA199129, AA104098, AA668026, AA673749, Z33771, H37732, AA057947, AA508912, AA925453, C83487, AA879378, AA879400, D66615, T37003, C57628, T38909, Z30529, AI043540, D86790, AJ225398, AA849454, C59318, C58653, C58972, C58359, 35 C58782, C82631, C57954, C69079, C56577, C55666, C53627, C32300, AA224629, AI013551, T00131, C68482, C72389.

40 SEQ ID NO: 499

- U44731, M81128, M55543, M55544, M63961, M14780, AC004530, U80955, M21494, Z78141, U66047, M55542, X73481, M94362, M80367, AL022117, Z82270, AA564268, N88929, AA044192, AA471169, AA093767, AA112212, AA194375, AA197163, AA977460, 45 C05415, F19355, AA722990, F21329, AA197131, C04155, F19358, AA176402, F22749, AA856166, AA921455, AA240404, AA061741, AA218234, AA107742, AA222398, AA823282, AA098568, C41769, D65910, D65830, C28722, C71757, D65511, D66581, D66300, C10192, D66790, AA998183, AA978840, AA817094, AA392895, AA246366, D34248, T43766, AA441550, AA540403, C49870.

SEQ ID NO: 500

- 5 D87440, AC004518, AC004746, AC002492, AC002558, U14568, AC004217, AC004130,  
AC004648, AC005217, AC003692, AA076663, AA862163, AA973753, AA086464,  
AA076654, AA666296, AA934680, AA302963, T55213, AA559290, AA176114, N27329,  
AA970213, N27763, AA804379, AA634889, N25296, R24887, AA571753, AA863851,  
AA415875, W64166, AA823826, AA517646, AA516955, AA516629, C88111, AI042710,  
W51648, H39328, AI044039, H39321, H39426, H39389, AA923995, AA787276, AA550283,  
10 AA713366, AA803997, AA803962, U74116.

SEQ ID NO: 501

- 15 U44731, M81128, AF033097, AF045432, S78798, U66300, U39066, AF039698, Z97178,  
AA317362, N88929, N84781, AA093577, AA247964, N83168, N84718, AA856166,  
AA107742, AA921455, AA061741, AA218234, AA222398, AA098205, AA538440,  
AA915500, AA174774, AA823282, AA288216, AA204474, AA870562, AA098568,  
AF041408, AA660164, AA933363, AI011419, AA933116, C60180, T09530, D65830, D65910,  
20 D66581, D65511, D66300, C10192, D66790, AA660165, H07848, C93682.

SEQ ID NO: 502

- 25 AC005276, AC003685, AC004448, U95997, AL009031, AC002326, Z97053, K01892, Z54073,  
Z76735, AC004690, AC004242, AC003078, AC002463, X12724, AC004456, U96069, N27177,  
F10104, T88944, AA837803, T53321, AA843865, N93216, AA838754, L13822, AA211589,  
AA832265, AA424458, AA424412, T89653, AA870126, AA104098, AA596129, AA461746,  
AA512220, AA921098, AA668026, AA543396, AA920341, C72024, C71903, AI013551,  
30 AJ225398, AA849454, AA898284.

SEQ ID NO: 503

- 35 U44731, M81128, M55542, M55543, M55544, M63961, M80367, X92112, U73641, U40423,  
AJ223732, AC003040, S67033, U72963, Z86064, D17519, M60873, U63337, AA317362,  
AA158924, W32064, AA305909, AA354725, AA100063, AA424070, AA296543, AA873192,  
AA311108, H30148, AA020729, AA346235, AA001029, AA878690, AA122936, AA880099,  
AA709608, AA217738, AA217704, AA990499, W71884, AA880120, AA288216, AA717634,  
40 AA204474, AA222205, AA589084, AA174774, AA008041, AA008046, AA822137, F14828,  
F14838, AA246802, C49281, C29182, L38527.

SEQ ID NO: 504

- 45 AA934680, AA302963, AA559290, T55213, AA176114, AA682912, R24887, AA804379,  
AA634889, N25296, AA599920, W79504.



SEQ ID NO: 505

X56123, AF001392, AB002318, Z46906, U10098, L19268, AC004003, M63795, M81182, AL022333, X83489, M94203, M87312, L40489, L00727, X58528, L08835, D31413, R54389,  
5 AA099762, Z17354, W28594, R17242, R18442, H50977, AA366319, T27372, H44662,  
AA367335, AA471266, AA632282, H74172, H94644, AA417191, AA013971, AA718262,  
AA015516, AA065946, AA770839, AA615519, W34578, AA657201, W17813, AA793573,  
AA592093.

---

10

SEQ ID NO: 506

Z17354, N41568, AA065314, N40571, AA064900, R94522, AA235815, AA156605,  
AA761982, AA253420, AA782695, AA533810, R48828, AA064905, AA770145, AA927597,  
15 AA934740, AA907518, H65346, AA393991, AA233601, N35879, T99315, AA614739,  
AA065946, AA770839, AA276737, AA036069, AA413718, AA413955, AA087178,  
AA823743, W20930, AA073223.

20 SEQ ID NO: 507

X56123, AB002318, AF036708, U73167, U90094, AC004534, AC000066, AA617862,  
AA745041, R41303, T30851, T55498, AA523382, H79450, AA640020, AA741423, H53771,  
R41853, AI042398, AA604320, AA947238, AA522881, AA533714, AA076342, R54390,  
25 AA678226, AA470807, AA081011, AA934738, N20971, H79335, AA632282, AA131573,  
T55421, AA863150, AA604059, H94645, D19779, AA954917, AA076343, AA296715,  
R83719, AA353626, AA343126, AA015595, AA081221, AA334546, H51631, R96799,  
T85486, W22495, T20065, M85878, AA129429, T78812, AA443644, AA329315, AA402527,  
AA535670, W54749, AA245381, C77940, AA619299, W11109, AA815774, AA240557,  
30 C77836, AA655265, AA451361, AA208883, W54171, AA920412, AA562035, AA518913,  
AA184813, AA518377, AA738720, AA259407, AA253634, AA797060, AA733912,  
AA796338, AA821471.

35 SEQ ID NO: 508

AA617862, R41303, T30851, AA741423, H53771, AA640020, R41853, AI042398, AA947238,  
AA604320, AA745041, T55498, AA533714, H79450, R54390, AA678226, AA523382,  
AA081011, AA470807, N20971, H79335, AA522881, AA632282, AA131573, AA934738,  
40 T55421, AA863150, AA604059, H94645, D19779, AA954917, AA076343, AA076342,  
AA296715, AA353626, AA015595, AA081221, R83719, AA334546, AA343126, H51631,  
T20065, R96799, T85486, W22495, AA129429, C77940, W54749, AA240557, C77836,  
AA815774, AA245381, AA619299, W11109, AA562035, AA920412, AA655265, AA451361,  
AA184813, AA208883, W54171, AA738720, AA518913, AA259407, AA253634, AA800962,  
45 AA963186, R86448, T14710, T20839, D48023, T42380, C74816, Z18025, D48172, AI044816.

SEQ ID NO: 509

X56123, AF001392, Z46906, M63795, M94203, Y17586, L19268, L08835, M87312, L00727, M31118, J02649, X84651, U17193, U14172, M22724, Z17354, N41568, N40571, AA065314, AA523043, AA235815, T99315, AA253420, R94522, AA927597, AA393991, AA156605, W44635, H65346, AA770145, N35879, AA934740, AA533810, AA233601, AA065946,  
5 AA276737, AA770839, AA064134, AA823743, AA036069, AA413718, W20930, AA413955, AA087178, AA073223, AA738964, AA738577, AA237833.

---

SEQ ID NO: 510

10

X56123, AB002318, AF036708, U73167, AC004534, U72877, U90094, U41110, R41303, T30851, AA617862, H53771, AA741423, AA640020, R41853, AI042398, AA604320, AA947238, AA533714, W54749, AA240557, AA815774, AA245381, C77940, AA619299, C77836, W11109, AA655265, AA451361, AA562035, AA800962, AA963186, T46610,  
15 N97287, H36233, AA395747, T76144, T20839, T14710, D48023, T42380, C74816, AI044816, D48172, R86448, AA978910, AI007653, N97212.

## SEQ ID NO: 511

20

X56123, AB002318, AF036708, AC004534, U73167, U90094, AF016684, AA617862, AA745041, AA523382, H79450, T55498, AA522881, R41303, T30851, AA741423, H53771, AA640020, R41853, AA076342, AI042398, AA604320.

25

## SEQ ID NO: 512

X56123, AB002318, U10098, AC004003, L26543, L23853, M82975, L09273, M83930, D31413, R54389, AA099762, R17242, R18442, H50977, T27372, H44662, AA367335,  
30 AA471266, H74172, H94644, AA452483, AI028611, N53073, AA970963, T74344.

## SEQ ID NO: 513

35 X56123, AF036708, AC004534, AB002318, U73167, U90094, M30511, M35324, S74059, U53569, AE000647, R41303, T30851, AA640020, AA617862, AA741423, H53771, R41853, AI042398, AA604320, AA947238, AA533714, R54390, AA678226, T55498, AA523382, H79450, AA470807, AA081011, N20971, AA745041, H79335, AA632282, AA131573, AA934738, T55421, AA522881, AA863150, AA604059, H94645, D19779, AA954917,  
40 AA076343, AA296715, AA076342, AA353626, AA015595, AA081221, R83719, AA334546, H51631, AA343126, T85486, W22495, AA129429, T20065, R96799, AA443644, T78812, AA864764, N53004, W48656, AA599769.

45 SEQ ID NO: 514

X56123, AB002318, U10098, Z00027, X61367, X02803, Z50120, M81182, X58528, AL022333, X81123, X83489, L40489, U67156, D84476, Z77163, X82190, X60985, M85183.

SEQ ID NO: 515

X56123, AF036708, U90094, U73167, AC004534, R41303, T30851, H53771, AA741423, AA640020, R41853, AI042398, AA604320, AA947238, AA533714, R54390, AA678226,  
5 AA617862, AA081011, AA470807, N20971, H79335, AA523382, AA632282, H79450, AA131573, T55498, AA745041, AA934738, T55421, AA863150, AA604059, H94645, D19779, AA954917, AA522881, AA076343, AA296715, AA353626, AA076342, AA015595, AA081221, AA334546, R83719, H51631, AA343126, AA129429, AA443644, T78812,  
N27755, N77887, W94236, AA329315.

10

SEQ ID NO: 516

AP000015, U01229, AB010266, M89651, M20187, AC003046, U88317, AC004455, M58588,  
15 U12620, AA190743, AA446042, AA187765, AA251942, AA070973, T12175, Z28837, AA095263, AA297663, AA248612, AA286738, W79190, AA248318, AA374275, AA905643, AA375387, AA375075, AA128252, AA147519, AA039871, Z28788, AA176681, R05983, N24510, W01709, N76809, AA056996, T82969, AA013342, T28951, R06553, AA683199, AA912663, T66800, AA017284, AA018380, AA285584, AA274436, AA080145, AA106812,  
20 AA107465, AA978573, C09443, T04550, AA660481, C57194, AA539959, AA901489, R03466, C57793, C60067, C32813, C56422, C38913, C38374, D71946, C37666, C36970, C37432, C35082, C34873, C33593, C32700, AA996525, C31743, C23990, C11668, D34905, AA997395, D71488.

25

SEQ ID NO: 517

AC004593, Z71187, AF072897, AF003130, Z98977, D85144, AA887587, AA573374, AA429894, AA039871, AA609693, AA128252, AA041470, AA070974, AA758806, W74455,  
30 AA026161, AA702826, AA845873, T78267, W25088, AA558142, W79190, AA128310, AA864348, AA187765, AA298500, Z24831, AA853034, AA905600, Z25193, AA446042, AA912741, AA029405, AA621462, AA070810, AA873244, AA181975, AA248612, N88589, AA905746, AA297663, T32497, AA057693, AA147519, AA564951, AA090057, AA026707, F01034, H84765, Z28837, Z19219, R17237, AA179599, AA375030, R82265, AA669099,  
35 W74720, AA727541, AA717607, AA276566, AA795287, AA717606, AA510328, AA796002, AA638632, AA795992, AA796003, AA080145, AA106812, AA285584, AA275392, AA274436, AA709830, AA467325, AA645913, AA522178, AA200990, AA215170, AA763583, AA067855, AA671613, AA254647, AI014019, C70194, C67526, N82551, AA849721, AA850360, C43975, D43217, C28123.

40

SEQ ID NO: 518

U41387, U22665, AL023704, AC005159, X16986, Z97339, AF075598, X15684, AC002492, Z82288, U50137, U59435, AB012246, AC004016, U92844, AL023814, AA314858,  
45 AA308981, AA100679, AA133576, AA545766, T18589, AA133577, T35498, AA308544, AA181561, AA161498, AA453744, R53263, AA674489, AA873991, AA153278, AA645800, AA796669, AA117400, AA219998, AA790234, AA289213, AA109788, AA881220, AA645936, AA762755, AA898732, AA788262, AA686127, AA294063, AA695135, AI007440,

AA685709, AA686442, AA960726, AA799672, AA686609, AA933514, AI030724, AA784464, AA858459.

5 SEQ ID NO: 519

U41387, AF064859, U42841, U95737, AC005215, AL008636, AC003971, AC004101, Z70682, Z81538, X06308, Z95329, AA639234, AA243645, AA088842, AA669838, AA284467,

10 AA453808, AA128764, AA128763, AA873045, AA436235, AA574344, AA724717, AA640981, AA813445, AA716639, AA722998, AA453893, AA887949, AA283605, AA736609, AA836346, AA824480, R74688, AA672435, AA123122, C85192, AA267815, AA739635, D32390, D32599, D34114, AA141300, AA520882, M80184, AA842705, N98036, AI013621, AA750909, T09621, AA550655, AA800790, C94478, AA042747, C12900, C91154, AA001583, D36567.

15

SEQ ID NO: 520, 521, 522

U30872, U19769, U25725, AC002071, U62026, U29615, AF058919, Z95703, AL021474.

20

SEQ ID NO: 523

25 L06237, X60370, X51396, Z29519, X67778, M83196, X66840, M30270, M30271, AC000385, U38292, D86978, U38291, AL008711, Z81066, AE000410.

SEQ ID NO: 524

30 L06237, X51396, X60370, Z67736, AB010077, Z61460, X67778, AA564629, W22414, AA984109, W28421, W27855, W28105, W26436, W25928, AA650363, AA102502, W29026, AA504701, AA111983, AA083718, AA912012, AA037860, AI033363, N50670, N88650, T55410, AA908935, AA707373, AA231294, W35860, AA793048, AA637587, AA920512, AA920495, AA755484, AA444883, AA409078, H31241, AA395128, AA201483, AA978748, 35 AA951418, C82641, AA783290, C83497, AA012719, AA012773, AI043282, C61164, AA949923, AA012678, AA893180.

SEQ ID NO: 525

40

L06237, X51396, X67778, U52950, X60370, M30270, AC002297, AC002295, Y14568, AF067607, Y10512, M97477, AA663039, T08382, F12058, T78361, H16377, AA100029, N87281, AI039749, R79923, T98690, AA530716, AA645968, AA656277, AA667643, AA168421, AA073597, AA250558, AA144582, W64789, AA250041, C45631, AA946497, 45 AA520211, AA519102, AA849858, AA979288, AA520297, AA660331, AA532013, AA519214, AA520225, D23332, AA519912, AA192037, AA742018, AA741784, AA741869, AA264183, AA997435, AA519152, AA192061, C26731, W35667.

SEQ ID NO: 526

L06237, X51396, X60370, X67778, D86978, Z67736, AF028339, X87635, S81773, Z61460, U50396, AC003013, AB007648, X83580, X69138, AB010077, W22414, AA564629,  
5 AA984109, W28421, W26436, W27855, W28105, W25928, W29026, AA650363, AA102502, AA912012, AA504701, AA111983, AA083718, W40515, AA219045, AA037860, AI033363, H99609, AA324177, N88650, AA017578, AA680024, AA908935, AA077556, AA707373, AA231294, W35860, AA637587, AA920512, AA536775, W36170, AA619991, AA920495,  
AA444883, AA755484, W57042, AA285874, AA409078, AA458300, AA793048, AA066697,  
10 AA839691, AA289862, AA562632, W85127, AA590098, AA409812, AA030944, AA571682, AA238992, AA458190, AA816067, AA118112, AA509393, AA986850, AA615852, AA544051, AA791722, AA816047, AA221748, AA222986, W41052, AA530638, AA710117, AA529489, AA986880, AA898732, AA788262, AA686127, AA294063, AA695135, AI007440, AA685709, AA686442, AA960726, AA799672, AA686609, AA933514, AI030724, AA784464,  
15 AA858459.

SEQ ID NO: 527

L06237, X51396, X60370, Z67736, AB010077, AF023460, Z61460, AA564629, W22414,  
20 AA984109, W28421, W27855, W28105, W26436, AA650363, W25928, AA102502, W29026, AA504701, AA111983, AA083718, AI033363, AA037860, AA120899, AA707373, AA231294, W35860, AA920495, AA637587, AA755484, AA793048, AA409078, AA920512, AA444883, H31241, AA951418, AA395128, AA978748, AA999088, AA201483, AA893180, AA801113, T41873, R03716, H37273, AA012773, C65763, C61164, AA067478, C44711, C69224,  
25 AA012678, AA949923, AA012719, AA783290.

SEQ ID NO: 528

Y13537, X70672, AB005554, Z19574, L78811, AB012240, AC001530, AA223139, AA355262, AA319397, AA333714, Z45759, AA287603, R20567, AA022991, AA435513, AA774585, AI004443, AA460142, AA602372, F19634, AA461185, AA346094, W86961, W72923, R13844, W94217, AA723271, D82556, AA663506, H08555, AA247414, AA449686, W22305, W78856, AA358091, AA758662, W76476, AA235142, W92947, R43867, D82452, W79591,  
35 AA918818, W92367, T33810, AA163859, AA387139, AA655548, AA793418, AA870492, AA270947, AA691478, AA542374, AA153558, AA712836, AA712793, D39880, AF054448, C65634, D69635, D39890, AA841965, AA736083, W43422, AA824811, D39923, N98004, N96290, AA696686, F14708, AA817863, T00933, AA228154, N96208

40

SEQ ID NO: 529

AC004031, AF012871, U74670, U41556, AF012868, AF012869, U49426, AF034762, Z98941, AA706552, AA195388, AA195257, AA194059, AI032600, AA807922, AA631609, W96149,  
45 AA888146, AA128526, AA701257, AA677383, W96282, H21675, AA724198, H25808, AA722414, D60312, H25767, AA223140, AA910055, AA203733, D80704, Z41408, D81423, C15473, R51558, H21676, AA341132, AA194077, AA319397, AA714509.

SEQ ID NO: 530

X16515, L22021, U81153, Z46266, Z74037, Z99281, AC002299, AC004703, L78833,  
AF000261, U82083, AL021472, Z73897, AL009048, AC003960, L10351, Z95125, AF067949,  
5 X65054, Z77666, M77191, M19152, U14634, U07603, M55629, L63545, AF044870, Z82258,  
U09500, AB005240, X51582, X62996, Z80901, AF044862, Z83237, D38112, Z83218,  
AF003135, X93334, V00662, U67538, Z82071, AF026212, AF016682, D66906, J01415,  
U40160, L09247, AF014939, AF044869, U46100, Z93382, AF044866, Z93018, AA418425,  
AA242889, W03015, W25672, AA384085, AA455417, R16931, AA991639, N77368, N87364,  
10 T84421, AA741182, T82821, T10388, T98370, AA503577.

SEQ ID NO: 531

15 AC004525, AC002430, AC003047, Z96050, U63721, U62293, AC002527, AF001548,  
AC004750, AC004000, AC004216, AC002994, L78810, AC002312, AC002302, AC004542,  
U91318, AC004685.

20 SEQ ID NO: 532

AF042416, AF000967, AC000373, AC005153, W28244, AA354316, C05280, AA318047,  
AA249758, Z19174, AA481880, AA355471, D80624, T20263, R19801, AA362032,  
AA362508, AA587580.

25

SEQ ID NO: 533

AB010693, AC002425, L08835, L00727, X82822, X05861, AC001228, U28374, AC003982,  
30 U39674, AL023533, AC005257, AC002302, U41018, Z83745, AC001142, AP000010,  
AC005221, U51281, AA022760, AA229815, AA279617, W61327, AA521356, AA933693,  
AA327640, AA339452, AA150758, AA780200, AA811639, W92986, AA229651, AA953083,  
W61328, AA279975, AA132092, AA022624, AA996286, Z20110, Z19175, AA229209,  
AA228413, AA251050, W27821, AA584677, AA704918, H48224, R85851, R81693,  
35 AA501450, AA334197, AA906348, H66169, AA705333, AA215982, R37208, H44630,  
N35896, AA034141, AA366990, AA534947, AA476626, AA584752, M86142, H68177,  
N20066, AA167018, AA431922, AA913549, W25524, AA177103, AA494194, AA723282,  
AA001418, AA493902, AA913114, W32760, H02400, AI039256, AA594229, AA599723.

40

SEQ ID NO: 534

M81890, D87011, AF001549, D87009, X69465, AB006684, Z93023, AC000024, M86351,  
AA079560, AA486992, AA641426, AA865212, AA988957, AA626571, R69215, Z43987,  
45 W23956, AA164280, R44480, H19173, R07885, AA644681.

SEQ ID NO: 535

X64143, M81890, Z61938, Z93023, K02827, M11610, AF020688, U83619, AF020687,  
AF020686, X02265, X83681, X69516, U02714, AA865212, AA641426, AA985306,  
AA486992, AA076652, AA534510, AA293408, AA399477, Z25115, AA648342, AA955004,  
W19887, N91693, Z43987, AA284346, AA164280, AA644681, AA731439, AA317138,  
5 AA960796

SEQ ID NO: 536, NR, X16515, U97209, U97205, U35413, AB008265, D86995, U97208,  
~~U97206, Z69782, U97207, AC002090, L81775, AC003988, U90441, L09247, U46100, U62738,~~  
AC002380, AC004629, Z68500, X93334, S72904, X62996, U09500, V00662, X77825,  
10 AC000365, D38112, AL022097, M55629, J01415, Z32681, AE001179, AA431044, AA991639,  
T10388, AA037576, AA723030, AA502034, D54939, AA194604, AA487686, AA659344,  
AA502487, AA193059, AA180918, AA610163, AA935460, F20808, AA095036, AA657662,  
F22234.

15

SEQ ID NO: 537

AA811439, AA252033, N72273, AA610861, AI041703, H49544, AA741182, R16879, T98371,  
N55362, AA455417, T90000, T84421, T82821, T98370, AA418425, R16931, AA459285,  
20 AA128977, AA504562, AA434037, AA459514, N77368, AA490845, AA410834, AA442182,  
H38772, R94289, AA694572, AA568459, AA677600, AA081138, R17077, T90646, T90660,  
AA205107, H09253, N51714, N51383, AA873540, AA223542, AA884235, H62538,  
AA406358, W79816, AA608743, AI032812, F03919, AA988713, AA857925, AA347678,  
R09155, F10039, AA358343, AA101731, AA527619, AA805444, H49641, AA533957,  
25 AA533378, AI014798, AA906947, N81069, AA618471, AA618417, AA488802, AA228349,  
AI003742, AA938396, T06704, AA640842, AA572953, AA342141, AA586459, H30037,  
N23840, AA565426, AA477053, AA533545, N38806, AA569178, AA837756, AA856954,  
AA258889, AA258786, AA132765, N54301, AA527893, R02545, AA612810, AA593516,  
AA768555, T62623, AA644545, AA983416, AA652861, AA629769, AA847097, AA569737,  
30 AA602954.

SEQ ID NO: 538

35 AB008264, X66098, X66097, AC004781, AA223385, W00659, AA299364, AA147874,  
R19569, AA248406, AA316289, AA197226, AA091120, AA773852, N55059, AI000381,  
F08533, AA744486, AA093550.

40 SEQ ID NO: 539

Z85994, AC002038, Z92546, AC002467, Z83823, X95646, AF020798, Z75537, AC003071,  
AF043196, AF002996, M76981, D50354, Z49908, U55373, Z70684, L18877, D50345, D86203,  
AA147837, AA007624, AA024558, AA976598, AA164679, AA946802, AI031793, W90030,  
45 AA025311, N26243, N68960, AA165076, AA071166, AA480601, AA128165, AA804439,  
AA687145, AA854484, AA551651, AA761586, AA229403, AA223303, AA125978, D11848,  
AA909934, AA765037, R02332, R02434, AA814220, AA319268, AA773852, AI051799,  
AA458967, R12500, AA862852, N70346, AA814638, AA703113, R62453, AI040743,  
AA703006.

## SEQ ID NO: 540

5 Z49250, L42305, X58470, U41456, D90745, X14336, D85144, X59771, L81891, AE000210, J04358, U21330, AA290723, AA573499, AA731091, AA283710, AA927565, N95583, AA694439, AA324714, AA379483, AA805306, AA774869, AA379994, R14378, AA214396, H47665, AA001405, W95192, AA043190, AA721753, AA641598, AA627345, AA702321, N28912, AA446322, AA415277, AA171097, AA444428, AA000614, AA738699, AA940013, AA717988, W64914, W10683, AA833125, AA762162, AA197530, AA981760, AA718011, 10 AA119104, AA096888, AA221937, AA982781, D77216, W53574, W09810, AA914615.

## SEQ ID NO: 541

15 AC002452, AF003140, AC002382, U41624, AF017732, AF001851, Z69719, AC004525, AA608559, AA811390, AA595663, AA178965, AA827242, AA834531, W31918, AA744475, AA643270, AA292001, AA515015, R44662, AA047466, AA969032, AA864694, AA768335, W24955, AA278457, AA768162, AA293263, AA369891, AA749083, N63305, AA369890, AA663654, T62232, AA085886, AA813873, AA429145, AA047400, D20621, T31504, 20 T89930, AA133203, H49462, AA664771, AA748050, AA846097, H80913, AA075576, AA534371, AA809339, AA948590, N21055, AA137871, AA189391, AI035905, W10608, AA117687, AA199092, AA014518, AA272907, AA238467, AA517207, W80106, W71353, AA636204, AA929877, AA644860, AA797414, AA102898, AA517326, AA832978, W61948, AA166486, AA137744, AA645939, W54331, C90619, AA925997, AI010497, AI010681, 25 T01768, AA996526, AA257229, AA697409, C89764, H35524, C90373, C93878, C92770, C91930.

## SEQ ID NO: 542

30 U13847, L08924, J02675, M12159, U66885, L08817, U03461, M20189, X67019, D90714, L08921, U87107, M11320, L08922, Z49250, U03460, X67018, X02306, AE000178, L08923, U03459, U41456, X14336, X58470, J04358, D90745, D85144, L42305, AE000210, U21330, X59771, AE000675, AA573499, AA283710, AA731091, N95583, AA290723, AA694439, 35 AA927565, AA805306, AA774869, AA379994, R14378, AA305260, AA214396, H47665, AA043190, F13037, T08367, N28912, AA627345, AA702321, AA344594, AA721753, AA446322, AA415277, AA171097, AA444428, AA982781, AA000614, AA717988, AA940013, W53574, AA718011, AA221937, AA833125, W10683, W09810, AA914615, W64914, D77216, AA738699, AA197530, AA762162, AA119104, AA096888, AA955830, 40 H33467, AA052021, AA007704, AI044010.

## SEQ ID NO: 543

45 AC002452, AF003140, AC002382, U41624, AF017732, AC004525, AF001851, Z69719, AA608559, AA811390, AA595663, AA178965, AA827242, AA834531, W31918, AA744475, AA292001, AA643270, AA515015, R44662, AA047466, AA969032, AA864694, AA768335, W24955, AA278457, AA768162, AA293263, AA369891, AA749083, N63305, AA369890, T62232, AA663654, AA085886, AA813873, AA429145, AA047400, D20621, H49462,



T31504, T89930, N21055, AA290571, AI000395.

5

SEQ ID NO:588

- 10 L07872, L34544, L34543, S63463, X17459, M81871, L07873, L08904, X59130, X59129,  
U60094, U60093, M81869, Z36843, L07874, L07875, L07876, M81866, M81867, M81870,  
M81865, AC002502, X58337, U49795, U49794, M94383, X66728, X58393, X65871, Z71185,  
AB003695, AC000100, AA101254, AA171575, AA332410, AA081973, AA101350, T67576,  
T19153, AA547961, R44578, F01398, U69195, T23712, R37405, D58647, AA429185,  
15 AA971158, R71133, AA948444, AA379373, AA770375, AA836690, AA811802, AA806363,  
AA496170, AA080102, AA104575, AA110087, AA111451, AA104058, AA098398,  
AA104601, AA389459, AA087347, AA407529, AA655129, AA870247, AA098304,  
AA415317, AA111471, AA110512, AA104790, AA542353, AA107448, AA500811,  
AA517402, AA072168, W36221, AA619786, AA682146, AA200846, AA038054, AA562718,  
20 AA637070, AA817421, AA736032, L46413, C12590, C73485, AA924572.

SEQ ID NO:589

- 25 L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81877,  
D90168, M64933, D90170, D25323, AF016494, L19394, AA701607, AA042864, AA641661,  
AA640106, AA483607, AA069672, AA903408, T67414, AI023923, N95392, AA788576,  
AA171398, AA101255, AA676341, AA169326, AA669918, AA101351, AA908462,  
AA044415, AA678797, AA126685, AA156824, U69195, AA705248, R12509, T23713,  
30 F05151, R19314, AA092442, T70135, AA705236, R57841, T61464, AA491057, AA501219,  
AA895510, AA052401, AA221065, W41110, D18981, AA522251, AA986473, AA946131,  
AA850747, AA945522, AI013632, AI014061, AA148327, AI008946, C24294, AA945480,  
AA858592, H33313, R46988, AI009864, AI010102, AA943376, AA924151, C47318, C74680,  
AA899268.

35

SEQ ID NO:590

- 40 L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60094, U60093, AF016494,  
D89933, AF038391, M29237, D31888, M22835, Z71502, D86977, AA701607, AA640106,  
N95392, T67414, AA042864, AI023923, AA641661, AA483607, AA069672, AA101255,  
AA676341, AA788576, AA169326, AA101351, AA908462, AA044415, AA171398,  
AA903408, AA678797, AA156824, AA669918, AA705248, T23713, F05151, U69195,  
R19314, R12509, AA705236, AA126685, R57841, AA491057, AA501219, AA895510,  
45 AA052401, D18981, AA522251, C87048, AA986473, AA002573, AA924151, AA943376,  
AA899268, D35942.

SEQ ID NO:591

L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81877,  
5 M64933, D90170, D25323, D90168, AF016494, AA641661, AA701607, AA042864,  
~~AA640106, AA903408, AA483607, AA069672, T67414, AI023923, N95392, AA171398,~~  
AA788576, AA669918, AA101255, AA676341, AA169326, AA101351, AA908462,  
AA126685, U69195, AA678797, AA044415, R12509, T23713, AA156824, AA705248,  
R19314, F05151, T70135, AA092442, AA969666, R45471, AA234950, W25228, R16902,  
10 H19326, AA235124, AA935398, F04242, AA705236, AA233367, AA232981, T79039,  
AA160334, AA563914, AA897714, T61464, AA928817, R44692, T32446, T16534, AA501219,  
AA895510, AA052401, AA221065, W41110, AA986473, D18981, AI008946, AA858592,  
AI009864, AI014061, AA945522, AA945480, AI010102, AA891259, AA946131, AA850747,  
C74680, AI013632, AA148327, H33313, D35942, AA899268, AA924151, AA943376,  
15 AA057899.

SEQ ID NO:592

L34543, L07872, L34544, L08904, X17459, S63463, M81871, M81876, M81877, AA641661,  
AA701607, AA903408, AA640106, AA042864, AA483607, N95392, AA126685, AI023923,  
AA069672, T67414, AA788576, AA101255, AA676341, T70135, T23713, F05151, AA169326,  
AA171398, U69195, R12509, R19314, AA101351, AA044415, AA935398, AA669918,  
H19326, AA969666, W25228, AA235124, R45471, R16902, AA234950, AA705248, F04242,  
25 AA233367, N99612, H18155, AA424744, AA594925, AA774998, AA501219, W97394,  
AA941118, AA696703.

SEQ ID NO:593

30 L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81876,  
M81877, AF016494, Z71265, AA069672, AI023923, AA042864, N95392, AA788576,  
AA701607, AA641661, T67414, AA171398, AA101255, AA676341, AA169326, AA101351,  
AA903408, AA640106, AA908462, AA044415, AA483607, AA156824, AA669918,  
35 AA678797, U69195, AA126685, AA705248, T23713, R12509, F05151, R19314, T70135,  
AA092442, R57841, AA705236, T79039, T16534, AA897714, AA928817, T32446, R44692,  
AA501219, AA895510, AA511219, AA986473, AA052401, W74810, D18981, AA891259,  
AA924256, AA924151, AA943376, AA899268, C74680.

40

SEQ ID NO:594

L07872, L34544, L34543, X17459, S63463, M81871, L07873, L08904, X59130, X59129,  
U60094, U60093, M81869, Z36843, L07874, L07875, L07876, M81866, M81870, M81867,  
45 X58337, M81865, U49795, U49794, AC002502, M94383, X58393, AB003695, M81868,  
U22418, Z15005, Z71185, AC000100, AA101254, AA171575, AA332410, AA081973,

AA101350, T67576, T19153, AA547961, R44578, U69195, F01398, T23712, R37405,  
AA429185, D58647, AA948444, AA971158, R71133, T95219, H66386, H49719, H66535,  
W84832, R00639, AA203664, W90492, AA806363, AA811802, AA496170, AA428549,  
AA379373, AA836690, AA770375, AA080102, AA123811, AA655129, AA104601,  
5 AA389459, AA104575, AA104790, AA110087, AA087347, AA111471, AA110512,  
~~AA111451, AA104058, AA870247, AA542353, AA107448, AA098398, AA407529,~~  
AA098304, AA183659, AA817421, C12590, AA736032, AA818143, AA800931, C73485,  
AI009770.

10

SEQ ID NO:595

L34543, L07872, L34544, L08904, X17459, S63463, M81871, U60093, U60094, M81877,  
M81876, U66059, U07978, D25323, AA641661, AA701607, AA042864, AA640106,  
15 AA903408, AA483607, AA069672, T67414, AI023923, N95392, AA171398, AA788576,  
AA669918, AA101255, AA676341, AA169326, U69195, AA101351, AA908462, AA126685,  
AA044415, AA678797, R12509, AA156824, T23713, T70135, AA705248, R19314, F05151,  
AA092442, AA969666, R45471, W25228, AA235124, AA234950, H19326, R16902,  
AA935398, F04242, AA233367, T79039, AA705236, AA232981, R57841, R11284, AA501219,  
20 AA052401, AA221065, AA522251, AA986473, AA967290, W41110, D18981, C74680,  
AA943376, AA924151, AA899268, D35942, F14238, AA057899.

SEQ ID NO:596

25

L07872, L34543, L34544, L08904, S63463, M81871, X17459, U60093, U60094, M81877,  
M81876, L07873, AC003986, U58757, AF036696, U07978, D90168, AF016494, D90170,  
U85198, M64933, AA641661, AA701607, AA903408, AA042864, AA640106, AA483607,  
AA069672, AI023923, T67414, N95392, AA669918, AA788576, AA171398, U69195,  
30 AA101255, AA676341, AA169326, AA126685, AA101351, AA908462, AA678797,  
AA044415, R12509, T23713, T70135, AA705248, R19314, F05151, AA156824, AA092442,  
W25228, AA969666, AA234950, AA235124, H19326, R45471, R16902, F04242, AA935398,  
AA233367, AA232981, T79039, AA705236, R57841, T61464, AA169765, AA174104,  
AA310871, AA501219, AA895510, AA052401, AA221065, AA148327, C74680, AI014061,  
35 AI013632, AA850747, AI008946, H33313, AA998132, AI009864, AA945522, AA946131,  
AA858592, AA945480, AI010102, AA924151, AA866343, F14238, AA097174, AA943376,  
AA899268, D35942, AA057899, H33820.

40 SEQ ID NO:597

AF003001, U40705, U74382, AF043911, U65586, U70992, U70993, U70994, AF022794,  
Y08905, Z78062, AC005220, U00921, X67841, AF040571, AC004022, AC004356, S78260,  
Z99287, Z98880, Z45971, Z19923, F13251, AA467846, AA468251, AA468235, T76958,  
45 AA143672, R71273, AA053348, N31972, AA926904, H42443, R68195, T90873, AI038855,  
N31985, AA399211, AA936307, W04528, AA834965, AA529658, AA103157, AA756846,

W90959, AA141049, AA294496, AA618872.

SEQ ID NO:598

5

U40705, AF043911, AF003001, U74382, U65586, X93511, L63545, U47029, AC004484,  
D83257, Y17297, X13986, S78177, J04806, X16151, X51834, X80836, Z72675, Z72673,  
M27674, U39650, Z48618, AF015262, AC002550, AJ229043, U21099, U03980, Z36238,  
D89159, M38723, X55891, U89510, AF016447, AF059294, U70034, U32938, AF001295,  
10 X62309, Z75115, AC004609, U60981, U64837, Z49907, Z82195, Z85999, AC004475, Z72488,  
AA467901, N68057, AA135978, AA135764, AA463246, T76958, R70911, AA467846,  
F13251, AA317158, AA207271, T63517, R68526, AA468251, AA204808, R25990, AA122171,  
AA084663, AA085094, AA129187, AA076496, AA205778, AA932416, AA954256, AI024113,  
AA074080, AA132239, AA744582, AA740566, AI017413, AA860885, AA019029, AA013185,  
15 AA529658, AA982217, AA980925, AA073811, AA563324, AA145872, AA798241,  
AA537448, AA986704, AA591084, AI043071, AA111749, AA839469, AI042865, AA106200,  
W08572, AA789592, AA104989, AA105901, AI035296, AI043053, AA068696, AA562128,  
AA122501, AA869031, C76786, AA673813, AA217034, AA647070, AA432419, AA146527,  
AA546210, AA760152, AA413194, AA529872, AA245574, L26814, AA433046, AA789517,  
20 AI036388, AA755609, AA495447, AA942845, AA597431, AA041093, AA041150, AA042294,  
T46728, AA395569, Z30088, C08922, AA395573, T21481, C40564, C51441, T20852, H37005,  
AA658796, T46390, AA451595, AA192037.

25 SEQ ID NO:599

U40705, AF043911, AF003001, U74382, U65586, U70993, X93511, L63545, U70992, D83257,  
AC004484, U47029, AC002433, Y17297, J04806, X16151, Z47809, AB010068, X13986,  
X51834, S78177, D84394, Z36238, U39650, AC003663, Z48618, U21099, M27674, U03980,  
30 Z72673, X80836, Z72675, L16560, AA467901, N68057, AA467846, AA135978, AA135764,  
F13251, T76958, AA463246, AA468251, R70911, Z45971, AA468235, AA317158, AA207271,  
Z19923, T63517, R68526, AA204808, R25990, AA122171, AA076496, AA084663,  
AA129187, AA085094, AA954256, AI024113, AA074080, AA932416, AA740566, AA205778,  
AA132239, R71273, AA744582, D60549, T16205, R12806, H42443, AA834965, AA926904,  
35 AA013185, AA019029, AA142896, N31985, AA936307, R25132, AA865406, N21157,  
AI017413, AA159666, AI038855, AA838062, AA569371, AA740956, AA860885, R68195,  
H02507, AA143173, AA969795, AA928532, N22437, N31972, AA529658, AA103157,  
AA982217, AA122501, AA980925, W08572, AA798241, AA839469, AA789592, AA986704,  
AA105901, AA563324, AA145872, AI043071, AA591084, AI035296, AA073811, AI042865,  
40 AA562128, AA537448, AA111749, AA869031, AA106200, AI043053, AA104989, AA068696,  
C76786, AA673813, AA432419, AA217034, AA647070, AA942845, AA495447, T46728,  
AA597431, AA752361, AA042294, AA041093, AA041150, C08922, AA395569, Z30088,  
AA395573, AA856242, H37005, AA451595, C51441, T43684, C39930, T36345, C39943,  
C40564, C90893, AA658796, AA651440, T46390, AA651575, AA192037, AA294496,  
45 AA618872, T21481, AA141049, T20852.

SEQ ID NO:600

M63167, X65687, M80675, Z75263, AF029308, AC004118, U18262, AC003970, M68651, U39667, AC002368, AF039720, AA449097, AA464153, AA780192, AA410624, AA910628, 5 AA504155, AA041305, AA642889, AA779598, AA323762, N59091, AA641572, AA775924, AA419297, AA494485, H44692, R87744, AA293630, AA328833, H44470, AA593626, H20505, AA235684, AA864467, T27622, AA043078, R20913, AA040851, AA464217, C04703, AA063612, AA808084, AA641279, F00510, AA283669, T03388, AA642689, AA630466, AA029628, C01998, AA506129, M78924, AA011575, H03551, H39037, R87811, 10 AA782531, AA044077, AA056416, AA887954, F00033, AA029653, AA887952, AA814959, AA622342, AA287197, AA147226, AA683561, AA082094, AA477383, AA922963, N59496, AA284493, AA477135, AA411074, R72069, AA618360, AI016521, AA610329, H38458, AA506017, AA411861, H03465, AA454688, AA456335, R20800, R72116, H96391, AA449529, AA041329, AA877759, H44436, AA927813, N32976, AA011602, AA700978, 15 AA988346, H01966, H67192, AA309612, AA626434, T39728, AA169456, AA164806, AA904790, R98618, H67180, AA988124, W72647, AA646329, AA003121, AA415535, AA186148, AA647701, AA528969, AA270159, W45884, W40915, AA981343, AA273536, AA163540, AA413890, AA597275, AA139683, AA153254, AA798907, AA144007, AA959146, AA666794, W83421, AA500374, AA647916, AA636884, C89408, AA014488, 20 C76913, AA386898, AA516946, AA117672, AA007846, AA020412, AA073660, AA996919, AA799664, AA998057, AA417500, AA933471, AA224616, AA933239, N41234, AI052884, AA068384, AA990965, AA890884, C83287, C82431, C43259, C65815, D49302, C72699, AA946375, AA892800, C40998, T14784, AA990930, C47753, C63880, C72049, AA996446, AA998751, AA956224, AA996966, AA998090, AA955672, AA787384.

25

SEQ ID NO:601

M63167, AC004361, M68651, Z83316, Z35640, AF040644, U42846, AA323762, H44470, 30 AA449097, R20913, AA464153, C04703, AA780192, AA328833, AA410624, AA464217, F00510, H44692, H03551, AA235684, AA642889, AA494485, AA293630, AA779598, N59091, R87811, AA041305, AA910628, AA775924, R87744, AA504155, AA641279, T27622, H20505, AA593626, AA011575, AA044077, AA642689, AI016521, AA630466, AA808084, AA506129, AA887952, AA887954, AA147226, AA040851, AA029628, T03388, 35 AA056416, AA641572, AA063612, AA622342, M78924, AA419297, N59496, C01998, AA043078, H39037, AA864467, AA082094, AA683561, AA411074, AA922963, AA283669, AA029653, AA454688, AA782531, H96391, AA411861, AA814959, F00033, AI040215, AA459455, H82393, AI038676, AA457137, AA486486, AA609695, AA972069, AA428831, AA603467, AA455220, R38120, W25052, AA287149, M91502, W07854, AA927813, 40 AA496297, T35158, AA292426, AA862443, AA910749, AA477135, AA041329, AA410353, AA981343, AA007827, AA050689, AA413930, AA789712, AI035716, AA048410, AI035710, AA020215, AI035569, AA500374, AA386898, W83421, AA924676, AA550539, AA925622, AA294289, D33598, AA787384, C25717, T20639, AI012376, C84815, D34101.

45

SEQ ID NO:602

U82108, AF004900, Z50150, AF035771, M87526, H27184, R72257, H49053, AA144402, AA900990.

5 SEQ ID NO:603

---

U82108, AF004900, Z50150, Z49911, F18486, AA160897, AA886424, W69654, AA524367, AA708236, AA846337, AA340577, AA573832, AA304111, H92982, AA583013, AA993608, AA047804, AA887591, AI019541, AA253870, D18378, W40828, W48532, AA945746,  
10 AA925147, AI013713.

SEQ ID NO:604

15 U82108, AF004900, Z50150, AF035771, L48775, AF015926, AF036241, U74079, U19815, Z80233, L26338, AF058302, M24282, AF054151, U31613, H27184, R72257, H49053, AA777814, AA777937, N48381, AA117781, AA763778, AA116517, AA821504, AA871706, W30479, AA869710, AA870376, W12132, AA239009, AA137750, AA672660, W91102, AA739216, AA871767, AA087651, AA142803, AA900990, AA942825, AA892164,  
20 AA964990, AI028957, AI030602, AA893047.

SEQ ID NO:605

25 U82108, Z50150, AF004900, AC003685, AC002504, AC002457, Z64771, AF022933, Y11397, U41107, S82821, Z49911, Z73988, H92982, AA304111, W69654, AA573832, AA846337, AA886424, AA340577, AA583013, AA524367, F18486, AA160897, AA993608, AA708236, R72015, AA047804, W48532, W40828, D18378, AA253870, AI019541, D41796.

30

SEQ ID NO:606

U11313, M75883, S52450, M55421, M75884, AF051897, S80339, M58287, X60654, M57454, M62763, M57453, M34728, AC004659, K00915, U73444, AC005142, AC004159, M91458,  
35 D84394, AB009054, Z99297, M91457, D21160, AE000555, Z92540, X15442, U41396, Z95326, U11584, U30821, Z33185, U37541, M30487, X03154, M11317, Z99943, AC004401, Z99708, U20864, AB015477, AC004746, Z35595, Z80215, AJ229043, M17627, AF015262, AF002196, AC004768, Z81547, U41995, L36897, U41038, Z93778, AF016420, Z34799, AE000664, AA659242, AA771708, AA662425, AA771727, AA872200, AI052484, N78410,  
40 AA815316, AA857869, AA781279, AA857652, AA781559, N22960, N30183, AA664009, N90729, AA279302, H43347, H14631, D57094, N62639, D58010, D20134, AA256445, AA164663, N78672, D56619, AA515632, AA551997, H43309, AA551782, D56709, AA704925, AA888556, D57577, F03114, AA007228, D57140, D58128, H70634, AA846663, D58347, AA617994, D56920, D57698, D57820, R35652, D57082, D58061, D57120, D57125,  
45 AA283364, D56852, AA937827, D56836, C16276, AA283359, D57010, AA283357, T29679, D57100, AA781584, AA452761, AA102128, AA452582, R85824, Z19870, R19294, H14925,

- AA781652, T81784, AA807361, H54781, AA588095, H62481, AA521141, N99975,  
AA908948, AA877421, R35318, AA909516, AA628322, AA683359, AA960968, N59478,  
M62031, AA346154, H67890, AA160940, AA404276, AA701593, AA744496, AA346159,  
AA588866, AA702222, AA885231, D60659, AA985969, AA710456, AA270378, AA987062,  
5 AA987039, AA222745, AA980411, AA116764, AI042674, AA237939, AA512371, AA597138,  
~~AA146030, AA250148, AA271455, AA822085, AA277481, AA060006, AA647999,~~  
AA409774, AA727826, AA500860, AA986025, AA409893, AA617156, C88281, C86463,  
AI046451, C76618, AA617132, AA968323, AA423273, AI042921, C79031, AI042898,  
AA277564, AA986047, AA107970, AA986223, C88922, W81997, AA797756, AA562250,  
10 AA881445, W29818, AA881830, AA060198, AA960086, W44023, W10482, AI047695,  
AA655196, AA738953, AA023888, AA014206, C85955, AA177230, AA671953, AA733648,  
AA763383, AA073872, AA170317, AA656768, AA688784, AA718634, C86134, AA980874,  
AI037502, AA397222, AA204225, AA921283, AA388462, AA682045, AA738625, C87067,  
AA066144, AA098173, AA111142, AA139069, AA162244, AA183226, AA709815,  
15 AA710950, AA763388, AA245126, AA153119, AA265244, AA395938, AA511462,  
AA833140, AA617004, AA799151, AA869220, AA183836, H32123, AA901345, AA942880,  
AA891692, AA942879, AA943820, AI007887, AA925866, AA859990, AA925217, T09855,  
C25635, AA956558, AA858978, AA109394, AA997238, AA216499, AA471607, W51558,  
AA842216, AA257173, AA280502, AA842069, AA283564, D33621, AA275442, AA627003,  
20 R47663, U95104, AA275444, C92065, AA454439, AA627042, D64315, AA550461, N43502,  
N43377, AA955403, AA257415, AA216473, AA275425, H21330, C84111, AA161551,  
W51626, AA925872, D43539, N21815, C93146, AI044396, N98036, AA754396, T21828,  
C50233, C84859, AA955653, H48206, C06628, AA945519, AA943664, C42677, AA925371,  
C44729, C84185, AA963072, AI010434, AI013950, N97751, AA800843, AA926358, H64223,  
25 D72917, C08524, C08811, C46650, C83852, C91163, AI046276, D26869, AA497257, C45777,  
AI012269, C84020, T00757, C40463, AA850728, AA925185, C90324, C90671.

SEQ ID NO:607

- 30 U11313, M75883, S52450, M55421, M75884, AF051897, M57453, S80339, M62763,  
AC004659, U73444, K00915, AB009054, AC004159, D84394, AC005142, M11317, X60654,  
D21160, Z92540, AE000555, M30487, AC004244, Z99943, U40948, U20864, X03154,  
M57454, U41396, Z81558, M58287, U37541, AC004401, U11584, U41038, Z93778,  
35 AF015262, Z34799, L36897, U28737, AJ229043, AF002196, AF016420, Z81547, U41995,  
AF039042, AB015477, AC002983, X06438, AF007270, Z35595, AC004768, AA659242,  
AA771708, AA662425, AA771727, AA872200, AI052484, AA857869, N78410, AA815316,  
AA781279, N30183, AA781559, AA857652, N22960, N90729, AA279302, AA664009,  
D57094, H43347, AA515632, AA164663, N62639, H14631, D58010, D56709, AA704925,  
40 AA256445, D20134, AA888556, N78672, AA551997, D56619, AA551782, H43309, D57140,  
AA846663, D58128, D57577, D56920, D57698, AA007228, H70634, F03114, D57082,  
D58347, AA617994, D58061, D57120, D57820, R35652, AA283364, D57125, D56836,  
D57010, C16276, D56852, AA937827, D57100, AA283359, AA283357, T29679, AA781584,  
AA452582, AA102128, R85824, T81784, AA452761, AA781652, R19294, Z19870,  
45 AA807361, H14925, H54781, AA588095, H62481, AA521141, AA588866, AA346159,  
AA702222, H67890, AA346154, AA744496, AA404276, AA701593, H93140, N29716,

- AA035332, AA666280, AA708286, H22937, AA526208, AA628322, AA908948, AI049915, H78237, C16510, AA846528, AA861646, AA356066, C88281, AA617132, AI042921, AI042674, C86463, AA617156, C76618, AA985969, AA968323, AA647999, AA271455, AA250148, AA987039, AA710456, AA986025, AA060006, AA980411, AA277481,
- 5 AA409774, AI046451, AA146030, AA759818, AA822085, AA222745, AA512371, AA597138, AA116764, AA270378, AA987062, AA237939, AA500860, AI042898, AA727826, AA423273, AA409893, C79031, W81997, AA797756, W10482, W44023, AA986223, AI047695, AA655196, AA738953, W29818, AA014206, AA516915, AA960086, AA023888, AA881830, AA060198, AA277564, AA980874, AA073872, AA763383, AA461946, AA671953,
- 10 AA111142, AA122868, AA139069, AA166200, AA833140, AA189967, AA271868, AA395938, AA511462, C80303, AA710950, AA763388, AA245126, AA881579, C88643, AA986047, AA105260, AA177230, AA255029, AA268661, AA555766, C81310, AA727103, AA960262, W65231, AA106275, AA869220, AA119053, AA086609, AA623154, AA667292, AA688784, AA546062, AA796545, W61767, AA170317, AA265244, AA183836, AA285878,
- 15 AI007887, AA945519, AA925866, AA943820, H32123, AA901345, T09855, AA942880, AA925217, AA858978, AA859990, C25635, AA956558, AA441654, AA440159, AA275425, AA842069, W51626, AA539951, AA694892, N43377, AA951614, N43502, AA275442, AA951114, AA567107, AA454439, AA696740, AA949523, AA280502, AA216473, AA263396, AA735334, AA695189, AA257415, AA264633, AA735385, AA696541,
- 20 AA842216, AA439683, AA627003, AA627042, AA735477, AA201669, C92065, C84111, AA440628, AA820729, H21330, AA950141, AA538832, AA390770, AA550461, AA471607, AA216499, AA109394, AA997238, AA952273, AA875744, AA802386, AA540855, AA697030, AA275444, AA942879, AA955403, AA951929, R47653, AA264352, W51558, AA891692, AA597409, AA754396, C84859, AA956504, AI012269, C84185, H48206,
- 25 AA926358, AI046276, D72917, H64223, C83852, D26869, AA042566, C84020, AA858751, AA850728, AA925185, Z25690, N97751, C91163.

## SEQ ID NO:608

- 30 M75883, M75884, AF051897, M58287, X60654, M62763, M57453, M34728, M91458, U11306, U11307, U11309, U11308, M55421, S52450, M62361, U11304, U11303, U11305, X91155, L09231, M57454, M91457, U11310, Z93375, X97685, X95443, X86694, AE000746, AC004407, U41550, U12439, AP000046, U41993, Z99291, U20861, AC002351, AA343982,
- 35 R84426, T53922, AA320971, F06851, W29048, AA081579, R29684, W15178, Z19683, AA347697, AA367017, AA099535, T26984, F06949, AA007229, T82098, AA262059, H44984, AA279352, N32373, R61157, R57993, N40832, R11575, H51179, AA279361, T40150, H60340, AA876126, N91637, H44905, AA903024, AA086072, AA192634, T19969, T63750, AA848139, H20334, W74489, AA105592, AI047408, AA073233, AA987102, AA986163,
- 40 AI046331, AA968410, AI046654, AA060637, W81808, AA620164, AA073373, W71734, AA072988, AI048998, AA199388, AA475973, W61994, AA986047, AI048828, AA231437, AI019591, AA914212, AA183999, AA726218, AA183391, AA839654, AA108330, C85192, F14816, AA817014, AA820898, C90796, AA943971, AA735035, AA943972, C60269.

45

## SEQ ID NO:609



D64005, Z47547, H14925, R97328, AA752846, AA713018.

SEQ ID NO:610

5

- V00662, V00710, J01415, X93334, X62996, D38112, AF054990, D50525, X93335, D38113, D38116, X93347, D38114, Y17170, Z71621, X99256, X97707, D38115, Y17174, M12298, U66061, Z70759, AF029308, X02226, U25123, X97336, U78342, X89763, X89765, U78346, U78328, U78326, U78344, U78339, U97343, M86497, V00680, U78341, U78350, Y07726, 10 U78340, U20753, U78331, X14848, J01438, V00681, AJ001588, U78348, X97337, U78338, U78334, U78345, U78330, U78332, U87983, M55539, U78329, M86501, U78347, U97335, U78349, X72204, U97340, M86495, M86494, M35875, M86493, M86500, X88898, J01394, V00654, U78343, M86496, X63726, U97337, X79547, U97338, X61145, M86498, M35876, M35877, V00665, M86499, AJ001562, U97336, M35874, U20754, X72004, Y10524, L07095, 15 L07096, V00711, M55541, Y11832, L35585, M55540, U97339, U97341, U97342, AF039436, AA156195, AA837501, AA211604, AA722510, AA101199, AA593692, AA806219, AA837552, AA809068, AA069787, C18511, AA081175, AA809120, AA548858, AA808965, D59027, AA555222, AA548322, AA876523, AA565377, AA554476, AA555052, AA563906, AA856781, AA714382, AA553425, AA593698, AA643360, AA555049, AA565897, 20 AA131338, AA180349, AA551211, AA554931, AA809137, AA714377, AA578668, AA575889, AA485302, AA548947, AA548856, C75634, AA187780, AA876475, AA595706, AA593792, AA211500, AA576595, AA554579, AA654346, AA643016, AA641259, AA642904, D51155, AA178050, AA211601, AA533073, AA548235, D52021, AA180957, AA548852, AA837570, AA602770, AA652684, AA216525, D56338, AA554597, AA548854, 25 AA554106, AA554734, AA595814, AA193227, AA868519, AA564005, AA551189, AA164534, AA548840, AA553534, AA608673, AA563954, AA553856, AA578871, AA548843, AA643290, AA642909, AA565762, AA548327, D51828, AA582730, AA563762, AA595777, AA826894, AA643162, AA812395, AA928697, AA071006, AA575827, AA595579, AA838283, D51071, AA682021, AA682016, AA692759, AA571129, C78436, 30 AA530592, C79662, C76503, C76087, AA615654, AA140493, AA647235, C76769, AA275856, AA271034, AA060850, AA879576, AA422814, AA162295, AA427325, AA562460, AA563249, C78279, AA445635, AA617320, AA445629, AA619495, AA560394, AA473166, AA790625, C78374, C76380, AA432943, AA666941, C78152, AA575672, AA794847, AA547490, AA562097, AA207627, AA275855, AA207706, C76177, AA607034, 35 AI049354, AA276226, AA399915, AA414310, C79665, C76404, AA546599, C78371, C80274, C78608, AA473191, C80311, AA434707, AA645958, AA269722, C78931, AA473180, C78649, C78917, C89299, C78364, C80116, C76461, AA271787, C78816, C79336, AA437980, C79978, C76341, C77782, C76455, C78313, C76976, AA241045, C80825, C79110, AA589968, C76191, C78057, C78595, C76403, C76416, C77792, AA529696, 40 C79492, AA445286, AA445340, AA518316, C89190, C79398, AA286097, AA760119, AA666554, AA067991, C78315, C79321, W96641, AA943683, AA945827, AA851795, AA945976, C06573, AA946045, AA799441, AI010222, AA944069, R46896, AI007687, AI012346, AA943678, C06883, AA012700, AA946037, AJ007466, AI009598, AI011357, X93284, Z84166, C82602, C83458, X91720, AI014135, C06615, C06507, AA545852, 45 AA514138, AA052035, AA563531, AA007732, AA253513, AA246076, AA991136, AA022351, AA570877, AA052036, AA246146, AA231984, AA848873, AA991145,

AA057913, AA022403, AI013652, R86631, W66514, H91497, AA567224, C84082,  
AA555604, AA695472, C90646, AA696177, AA605789, AA696325, AA943399, AA802879,  
AA943838, AA957048, AA514149, AA550030, AA819881.

5

SEQ ID NO:611

- X81198, S74341, AC005148, S63823, X61457, X53820, Z70680, U32692, D84394, AF019376,  
Z99289, Z46793, L29789, AA412680, AA206349, AA102578, AA293170, AI025067,  
10 AA705915, AA165600, AA527537, AA705055, AA192464, AA506760, N24749, AA047461,  
AA088764, N26132, AI040426, N32156, N32947, AA688242, H99310, AA434593, AI002397,  
AA993720, AA707731, AA422132, AA804436, AA719418, AA928305, AI024105, R76982,  
W15326, H94333, N21273, W42458, AA243440, N42618, AA856562, W85810, H99597,  
N67805, AA808672, H98545, AA599213, AA811624, AA714152, H88780, H88997,  
15 AA055972, N94593, AA491237, AA788790, T99642, AA598401, AA026110, H96031,  
Z40496, H07091, AA081953, R36241, AI022977, AA554666, R21824, R08208, N92709,  
F04702, H24774, R80774, R31914, T34041, R80765, R65607, AA047395, AA088763,  
W20326, AA806861, AA612944, R39589, AA380341, H24822, AA165481, AA029610,  
T99056, H99596, AA525270, AA826917, AA340875, R32597, R80764, AA367928,  
20 AA304895, AA292732, AA405032, N59435, AA654942, AA845488, H27096, W69173,  
AA495982, AA587836, AA960628, AA068567, AA691739, AA067202, AA682061,  
AA544759, AA518283, AA189768, C89374, AA271271, D19224, AA930673, AA140370,  
AI046865, AA471738, AI046836, AA959166, AA711362, AA265873, AI035607, AA691975,  
AA986088, AA183370, AA222648, AA265273, AI046485, AA059545, AA178621, W91579,  
25 AA915644, AA153692, AA237206, AA268820, AA964145, AA892567, AI010488, AA946440,  
AI011123, AI013192, AA819757, AA963606, AA945046, AA963929, H33366, AA818325,  
AA720308, C89916, AA406834, AA687079, AA963948, AA257371, AI030119, AA509034,  
AA893844, AA257246, AA430867, AA454454, N43424, AA114484, AI030346, AA430886,  
C88418, AA123512, AA842513, AI029667, AA140770.  
30

SEQ ID NO:612

- X81198, S74341, U32692, D84394, Z70680, AF019376, L29789, Z46793, Z99289, AA412680,  
35 AA102578, AA206349, AA293170, AI025067, AA705915, AA527537, AA705055, AA192464,  
AA165600, AA506760, N24749, N26132, AA047461, AI040426, N32947, AA688242,  
AA088764, AI002397, AA993720, AA707731, AA422132, H99310, N32156, AA804436,  
AA928305, AA719418, AI024105, W15326, H94333, W42458, N21273, AA856562,  
AA434593, AA243440, W85810, H99597, N67805, R76982, AA808672, N42618, AA599213,  
40 H98545, AA811624, H88780, H88997, AA055972, AA491237, AA788790, N94593,  
AA598401, T99642, H07091, AI022977, H96031, AA714152, R36241, R21824, Z40496,  
N92709, AA026110, F04702, R08208, R80774, T34041, H24774, R31914, AA554666, R80765,  
R65607, R39589, AA081953, AA806861, AA612944, AA047395, AA088763, T99056,  
AA380341, H24822, AA525270, AA165481, W20326, AA826917, H99596, AA029610,  
45 AA340875, R32597, AA367928, AA495982, AA587836, AA570477, AA425045, AA845488,  
H27096, N59435, AA631753, AA654942, W69173, AA677089, AA068567, AA960628,

AA518283, AA544759, AA682061, AA067202, AA691739, AA189768, C89374, AA271271,  
AA140370, D19224, AA930673, AA471738, AI046836, AA959166, AA265873, AI046865,  
AA711362, AI035607, AA691975, AA986088, AA183370, AA153692, AA222648, AA178621,  
AA059545, AA065949, AA963929, AA892567, AA819757, AI013192, AA945046, AI011123,  
5 AI010488, AA963606, AA946440, AA964145, H33366, AA818325, AA720308, C89916,  
AA893844, AA430867, AI030346, AI029667, AA406834, AA963948, AA687079, AI030119.

---

## SEQ ID NO:613

10 X81198, AA412680, AA102578, AA206349, AI025067, AA293170, AA434593, AA707731,  
AA705055, W42458, AA705915, AA719418, AA993720, AA527537, AA047461, AA165600,  
AI002397, AI040426, AA506760, H94333, AA192464, AI024105, N26132, AA928305,  
AA804436, H88997, AA856562, AA422132, AA688242, N32947, N24749, W15326,  
15 AA088764, H98545, AA243440, H99310, AA599213, AA808672, H99597, R76982, N21273,  
N67805, AA491237, AA055972, AA788790, AA598401, AA811624, AA026110, T99642,  
H88780, N32156, Z40496, N42618, W85810, AI022977, H07091, AA714152, H96031, F04702,  
AA806861, N92709, N94593, R21824, R80765, R36241, R08208, T34041, AA554666,  
R80774, W20326, H24774, AA088763, AA380341, AA612944, AA081953, R31914, H24822,  
20 R65607, AA826917, R39589, H99596, T99056, AA525270, AA047395, AA029610, R80764,  
AA292732, AA405032, R32597, AA165481, AA340875, AA367928, R80773.

---

25

## SEQ ID NO:613

X81198, AA412680, AA102578, AA206349, AI025067, AA293170, AA434593, AA707731,  
30 AA705055, W42458, AA705915, AA719418, AA993720, AA527537, AA047461, AA165600,  
AI002397, AI040426, AA506760, H94333, AA192464, AI024105, N26132, AA928305,  
AA804436, H88997, AA856562, AA422132, AA688242, N32947, N24749, W15326,  
AA088764, H98545, AA243440, H99310, AA599213, AA808672, H99597, R76982, N21273,  
N67805, AA491237, AA055972, AA788790, AA598401, AA811624, AA026110, T99642,  
35 H88780, N32156, Z40496, N42618, W85810, AI022977, H07091, AA714152, H96031, F04702,  
AA806861, N92709, N94593, R21824, R80765, R36241, R08208, T34041, AA554666,  
R80774, W20326, H24774, AA088763, AA380341, AA612944, AA081953, R31914, H24822,  
R65607, AA826917, R39589, H99596, T99056, AA525270, AA047395, AA029610, R80764,  
AA292732, AA405032, R32597, AA165481, AA340875, AA367928, R80773, D19224,  
40 AA691739, AA518283, AA930673, AA544759, AA271271, AA711362, AA068567,  
AA960628, AA682061, AA189768, AA067202, AA798143, AA543158, H33366, AA819757,  
AI013192, AI011123, AA963606, AA963929, AA945046, AA946440, AI010488, AA892567,  
AA964145, AA818325, AA842436.

45

## SEQ ID NO:614

- U28831, Z78541, Z85996, U33275, M10134, D50601, X83287, U64608, S65207, Z49286, U53180, Z49285, Z97348, D13663, AC004476, AC004742, AF001308, T10311, AA249750, N62051, AA088359, AA069486, N56023, AA553416, AA446279, C15980, W20230, AA426231, R01148, AA100935, AA192179, AA279613, AA082559, AA278941, N33323, 5 AA043139, N47018, AA836884, W87285, C18639, AA591957, AA033113, AA212049, C85811, AA770861, AA798281, AA153484, AA274657, AA759924, AA259507, W96875, AA189685, AA168119, AA797640, AA145772, W82209, AA267994, AA986113, AA606626, AA249900, AA590986, W96872, AA725984, AI008019, AA495219, AA848647, AI011707, AA697700, N65009, AA392406, AA568062, D46427, AA940906, T38767, AA441016, 10 T15167, AA819399, AA859550, AA899046, T38774, AA799503, T38296, AA874742.

## SEQ ID NO:615

- 15 U28831, AF016686, Z85996, Z93928, AA553416, R01148, C15980, AA088359, W20230, T10311, AA069486, AA446279, AA100935, N56023, AA192179, AA426231, AA082559, AA279613, AA777564, AA621640, AI004622, AA707143, H88829, W52290, H88830, AA256374, AA766135, AA677539, Z78318, T95031, AA889510, AI022486, AA628783, N77543, H89948, AI041765, W45423, AA746269, W02557, AA736845, W48645, AA043693, 20 AA451881, AA747909, AI018470, AA101081, F10259, N51242, AA954779, R71456, AA267694, AA204101, AA873929, AI019694, W53762, W48242, AA120253, AI047063, C92081, C68661, C92904.

## 25 SEQ ID NO:616

- U28831, Z93928, AC002454, AC004613, Z48621, Z82189, AC005246, AC004547, AA553416, W20230, AA100935, AA426231, R01148, C15980, AA088359, N56023, T10311, AA446279, AA082559, AA192179, AA069486, AA279613, AA932327, AA632516, AI004622, AA456194, 30 AI014425, H38522, AI015903, T06689, AA329764, AA189831, AA546824, AA571196, W14631, AA204101, W62599, AA120253, W48242, W36391, W11390, AA755750, AA267694, C80606, AA038481, AI019694, W10589, W00109, AA956040, C23325, AI012839, AI011972, F23049, W63449.

35

## SEQ ID NO:617

- U57645, S78825, D13890, S78986, X77956, D13889, U43884, M31885, L23148, M86708, D10862, D13891, M97796, M69293, M96843, D10863, AF049135, AF068831, AF007414, 40 Y08368, M31902, M32636, M31901, U16153, X75018, AJ001972, Y07958, U28368, AB007000, S76880, D10879, AF003626, X63841, U03771, AC002502, AF074603, L17131, U45285, AA402148, AA402534, W94501, AA434545, AA773775, AA442730, AA037144, W78892, H67415, H63164, H79454, W69973, R28063, W01825, AA158482, T27389, AA402991, AA100974, W05112, AA158304, AA029841, AA085496, AA635758, R64428, 45 AA856603, N80544, AA846831, D30824, AA293530, N92465, T29348, H95030, N99516, H00251, AA927561, W17156, AI038013, W86560, N55317, AA977528, R96317, AA856639,

- H10512, H70169, AA315445, T19443, N39712, AA248350, W49729, AA460804, AA317953, W38998, AA305303, H57072, AA244254, W96449, D52725, D52446, AA352083, H54369, AA846298, AI038365, D52440, AI031740, W56034, AA729180, T99883, AA855096, N68174, AA094834, AA732823, AA553724, AA968795, AA449538, W37258, W52842, W96546, 5 R12658, N80633, AA948496, AA582212, AA244044, T50950, AA033993, R48599, AA151620, AA847016, H51908, AA708137, AA100975, N26622, W38807, AA275532, H57073, AA996089, AA812456, H54291, W20315, H81838, R48701, AA537473, AA104954, AA015127, AA000275, AA245114, AA980126, AA272632, AA611580, AA002655, AA416075, AI048710, AA221040, W98215, W87099, AA020521, AA855942, AA272633, 10 AA272634, AA015170, AA028385, W56997, AA272635, W08372, AA958648, AA002977, W08321, D21793, AA060627, AA762488, AA036390, AA272636, AA066918, AA982863, AA469536, AA563039, W70570, W18043, AA277331, AA105408, AA162208, AA290412, W83211, AA290337, AA646282, AA123373, AA606850, AA109195, AA030265, C88707, AA059598, AA655741, AA684307, AA240422, C80022, W14857, AA799182, AA272637, 15 AA432701, AA869451, AI020763, AA763343, AA107820, AA636155, AA840196, AA066140, AA692865, AA880663, AA409757, AA183775, AA591153, AA896703, AA870106, AA182168, AA793152, AA797180, W36455, AA718564, AA790952, AA823725, AA966929, AA980653, AA980853, W29518, W30048, W30258, AA007990, AA389171, AA537474, AA717592, AA940427, AA734505, AA790940, W82367, AA670576, AA450660, AA543465, 20 AA823194, AA881164, AA939354, C06777, AI009595, AA819539, H35161, AA686930, AA685852, AA851735, AA391523, AA439247, AA802644, AA567404, AI044710, AI007907, AI030517, AA997043, AA818860, AA892021, AI012052, AA497329, AA962852, C19681, D75832, D45273, AA892514, D40501, D39794, AA439218, D15218, AA754460, D49340, C29032, D48067, N96093, T02111, D48856, D48862, AA957930, D41218, C72718, 25 AA695311, AA943106, N38392, AA892429, D36870, AA943025, H36135, D15293, T75801, D24608, C91657, D42380, D46645, AA979476, AA925085, D38800.

SEQ ID NO:618

- 30 U57645, S78825, X77956, D13889, M31885, N40205, N92465, R42854, AA776956, AA962658, AA977528, AA846831, AA098812, AA100975, AA402991, AA158021, AA564627, W57694, N68104, N70771, AA457158, AA582212, AA158383, AA039846, AA987457, AA936837, AA995770, AA708137, AA635758, AA856603, AA029307, W17156, 35 AA649880, AA160925, AA927561, AA582644, W84666, R63818, AA605016, W86561, H13207, AA219438, AA502273, W94616, N71486, AA427914, N59802, W69974, AI038013, H67366, AA293531, AI031740, AA628690, N75411, AA812347, R23896, AA632337, T23967, AA932541, H79339, T29348, H63080, AA826698, AA678110, D12428, H95093, AA911961, AA060424, AA407767, C82597, C83453, AA944852, AA900869, AI009595, AA899322, 40 AA819539, AI012052, AA851735.

SEQ ID NO:619

- 45 M31222, X52078, M31523, M24405, M31522, M95586, M24404, X62323, X54549, U10993, X17500, D16631, D16632, D16635, S77532, M65214, AL021978, AB002454, AB002461,

AC004021, X89416, D29919, U55276, M76432, U11508, U25174, AA251176, AI027246,  
AA906873, AA284826, AI023158, AA768906, AA864713, AA761788, AA992325, AA732149,  
AA825933, AA741143, AA907591, AA811721, AA804490, AA825583, AA827727,  
AA831462, AA284598, AA485146, AA521374, AA888764, AA481960, AA504502,  
5 AA811027, AA482075, AA026644, AA482073, AA065053, AA481955, AA811585,  
~~AA883524, AA261863, R71755, AA251379, R72653, R54960, C18205, AA350221,~~  
AA026102, AA283944, AA251378, AA639838, AA649316, AA235661, AA258188,  
AA284958, AA459409, AA736653, AA243623, AA448293, AA563669, AA748889,  
AA534698, AA714643, R46520, AA971973, AA458915, AA211837, AA291511, N70653,  
10 AA977695, AA890718, AA994039, AA857742, AA758651, H28074, R77759, N92448,  
H61187, W96188, H24664, AI032639, AA811584, AA534806, T79941, T64887, H55980,  
AA936636, AI039325, N54551, R60234, AA179066, H52813, AI049635, AI052182, T83352,  
AA612744, AA811560, R45213, AA977286, AA236318, Z38163, AA612871, AA876062,  
AA521104, AA938322, AA808108, AA103359, AA867031, AA124519, AA117566,  
15 AA492609, AA509762, AA874295, AA108960, AA161906, AA871765, AA118906,  
AA241295, AI046920, AA274509, AA925168, AA949467, AA538880, AI008604, AA539675,  
AA894145, AA816983, AA439550, AA944531, AA942050, AA950297, AA949603,  
AA735910, AA539403, AA201573.

20

SEQ ID NO:620

M31523, M65214, M31222, K01241, M24164, D31955, AA829266, T47792, AA442932,  
AA176379, AA758065, AA613989, AA868357, H52644, AA788849, AA459634, AA514584,  
25 R77848, AA292521, AA285115, N79022, H62090, R51355, AA431495, R15325, H61535,  
AA608615, H29078, W31285, AA219678, AA210757, AA075254, AA076047, H73728,  
AA050679, AA387697, AA265653, AA254354, AA396011, W83540, AA270595, AA408400,  
AA250138, AA710652, AA674377, AA978497, AA494742, AA940591, AA735656, AI008078,  
AA739912, AA191996, AA901627, AI045492.

30

SEQ ID NO:621

Z48784, U41992, AA703998, AA044900, H98974, AA716497, AA491463, AA599783,  
35 AA031932, AA600033, AA044689, AA548128, AA669937, AA173933, AA627069, AI041635,  
H97549, H97601, AA186359, W72045, AA032050, AA137262, AA026782, W92629, W78218,  
AA088246, AA661793, W46845, AA595373, W94840, W58303, N23437, N79437, W63570,  
W46494, AA583657, AA593009, AA983246, AA788950, H97340, N33105, H97416, N34381,  
AA147651, W46790, N67716, W96120, W94418, T47507, AA961557, AA599353, AA987381,  
40 AA565505, AI025353, W81572, AA888923, W42793, W58194, AA903702, AA480682,  
T33491, W74255, W52215, AA722567, W76397, W51762, W96121, W52141, AA988438,  
AA664567, N70652, AA025046, AA128494, R87166, AA599854, W46918, H50538,  
AA666225, R95744, AA025047, AA853933, R56693, R39109, AA853321, AA599400,  
AA886647, C00827, T90854, N73609, Z38867, W52070, T54372, AA987862, N94338,  
45 R83373, AA719902, AA501650, N68056, T62853, W17326, R07697, R81056, C85873,  
AA180654, C94851, AA293962, AA440719, AA941072.

SEQ ID NO:622

5 AF012072, AB003362, AF073830, U83251, AA774760, AA293841, AA425125, W40521,  
M85634, AA402442, AA179025, N34260, N75161, N85658, R54165, N34263, AA669349,  
N39869, AA044583, AI039716, AI041216, C04504, AA033569, AA762442, AA142665,  
AA789817, AA476083, AA623031, AA623053, AA839236, AA871801, C61324, C63188,  
AA676129, AA257810.

10

SEQ ID NO:623

AF012072, Z34918, AF012088, D12686, L22090, AF051934, AJ229042, U84100, AF055066,  
Z48432, AF005681, AF005675, AF005670, AF039057, AF005697, Z74071, Z74072,  
15 AF005683, AF005679, AF005680, AF005694, AF005673, AF005669, AF014948, AF005682,  
AF005674, AC000066, AC003009, U29157, Z68296, AC004763, U84099, AF005671,  
AF005678, AF005684, AF005685, AF030884, AF015454, U62943, L05514, AB008681,  
AF005672, AC004532, L04132, Z68748, AI014367, N92469, C15377, AA134568, W05794,  
W79550, W17157, AA468635, R50684, N25822, AA665666, AI039626, AA134567, R50683,  
20 AA457747, AA491028, Z26996, N44557, C21162, AA425182, N75058, AA910355,  
AA147590, AA095103, AA730099, AA011174, AA610357, AA527291, AA658171,  
AA211545, AA059268, AA579633, AA173380, H50624, AI024443, R73685, AA176799,  
AA010443, AA713681, AA521194, H01346, H56415, AA613629, AA767888, H89553,  
AA447947, AA612937, AA312008, AA604164, AI000693, H93075, AA705169, AA336339,  
25 AA563630, AI017605, AA776703, AA861544, AA102784, AA509441, AA655398, C86651,  
W61392, AA210375, AA002277, W61394, AA840592, AA822617, AI019204, R75462,  
AA008667, W30394, AA254210, AA103273, AA172736, AA261254, AA839128, AA762524,  
AA033419, AA014557, AA212904, AA080224, AA409974, AA139181, AA881971, AI048331,  
AA538296, AA959429, AA139372, AA538203, W29456, AA538068, AA271264, AA209088,  
30 AA244839, AA530597, AA104643, AA152553, AA174577, AA038437, AA608039,  
AA048344, AA451453, AA271829, AA762267, AA762288, AA140341, AA982351,  
AA608321, C76476, AA177406, AA254248, AA397202, AA615429, AA646552, AI048391,  
AA930467, AA197396, AA216884, AA960279, AA914035, W12213, AA067097, C76067,  
AA821737, D18988, AA124733, C79956, C85907, AA794425, AA981654, W35735,  
35 AA589522, AA267923, C76467, AA980886, C76479, AA123430, AA125454, AA560245,  
AA893170, U30849, C54341, C11247, D33256, AA624966, AA658642, AA720446,  
AA495115, T18112, AA999529, AA241425, R82900, C36016, AA925357, AA941899,  
AA800217, AA241554.

40

SEQ ID NO:624

U67547, U49829, AL009028, L01943, AC003078, AF016669, Z70780, X69920, AC005270,  
L00587, N27428, N91105, N63752, R16611, AA705364, W28305, AI024323, AI020141,  
45 AA793006, AA692687, AI045505, D15159, AA247041, C94134.

SEQ ID NO:625

- L16782, L11910, AC002070, X87344, AC004613, AC005178, AC003085, Z97629, D87022, Z97206, Z70050, Z73986, AC004104, Z95624, L38952, AF001295, Z81365, Z73967, Z80900, 5 AC002081, AC004038, Z78022, AC004388, Z93403, AC003960, AC004020, Z98753, ~~AE000660, Z82170, AC002526, Z69367, AB009801, AD000685, AC000054, AC002404,~~ AC004103, AC002366, AF013593, AC004457, AC002990, AC004383, Z82205, Z86063, U80460, AC002075, AC005192, AC005092, AC003014, AJ001981, AC003049, AC002076, AL022322, AL008724, AC004478, Z98255, AL009181, Z98880, AC003661, U69570, 10 AC003010, Z95124, AC004009, AC002457, Z99289, AC003667, AC004087, Z96810, Z82203, AL008709, AC004069, AC002463, AC002072, AC002448, AP000016, D14034, AC002524, Z68746, Z70272, AL009173, AL022148, Z82975, AC000053, AC004025, AC000362, Z86064, AL022321, AC003080, Z69906, U82696, AF045555, AC002541, Z84719, AC000062, Z75745, AL021812, U95741, AC003969, Z68868, AL008710, Z82194, AI041010, AA742995, 15 AA989031, AA811871, AA205874, AA767325, AA808679, AA769899, AA972817, H20890, R17891, AA831154, F03337, AA581098, R60505, AA169205, AA350198, F03291, AA782346, AA463216, AA516148, R22981, AA534745, N62349, R52631, R55681, AA993625, AA096300, R40188, N36266, R61889, N67068, H41181, F04195, W21339, AA551324, Z19907, AA723783, AA551665, AA814417, AA759193, AA468999, AA808697, AA687732, 20 AA694387, N57373, AA992391, C16407, AA600194, AA618321, AA883885, AA480504, AA469256, AA004414, T40368, R31339, AA618138, W99308, AA994725, AA701082, AA514439, AA309494, AA631188, AI002414, T06870, AA935161, N93679, AA535617, AA677371, R31801, N52300, AA746938, AA855047, H97762, R37790, T94417, AI024848, AA128313, R31228, AA934093, F00123, H96567, AA939046, H74023, H53949, R70567, 25 H19725, AA984315, H49695, R83342, AA873726, AA280674, AA926782, R73502, AA884912, H97735, R23182, AA525450, AA525461, AA876318, AA207521, AI046801, AA756172, AA636494, AA879494, AA881851, AA388727, AA254249, AA636178, AA636179, AA727949, AA899333, AA875010, AA923974, AA751607, C94174, C90750, AA923930, C25513, AA856222, AA547868, AA550436.
- 30

SEQ ID NO:626

- D32053, D31890, Z31711, L36832, AE000646, AC004741, Z86061, U41105, Z11508, U24186, 35 X85117, AL022099, Z11507, AA573283, AA614334, AA662444, AA614337, AA057672, AA703991, AA630704, AA564251, AA780600, AI041024, AA704099, AA599314, AA714642, AA425858, AA490053, AA446904, AA599834, AA622340, W93690, AA521031, AA583419, AI039385, AA582748, AA759087, AA593700, AA602650, AA854428, AA736396, AA954213, N70800, AA758504, AA568883, AA977448, AA151845, AA574018, AA588070, AA099697, 40 AA025163, AI002294, AA086271, AA985162, AA970759, AA025134, T69945, N54535, AA489715, N50552, AA779791, AA826636, AA665448, AA621215, AA136638, AA187940, AA410502, F19177, AA810122, N55561, W22544, AA570143, R43913, AA431976, AA639540, F02808, T15632, AA706355, AA157319, AA765674, AA425264, AA704403, H62843, AA225489, AA250893, R01261, AA486374, AA714876, H05288, H91283, R43186, 45 AA219436, R43187, W93742, H83409, AA729526, T85095, AA076288, T28841, H68493, H05831, AA974496, AA908817, AA486220, N50606, AA461541, AA443856, AA621748,



AA976735, AA826269, AA037797, H62963, AA503390, AA209876, W08610, AA692247,  
AA543220, AA692131, AA422603, AA606653, AA475557, AA606664, AA756724,  
AA388183, AA645501, AA120029, AA727543, AA982821, AA575222, W77297, AA815798,  
AA896112, AA221158, AA474923, AA171278, AA795587, AI047220, AA474983, AA839217,  
5 AA105493, AA518173, AA517714, AA124966, C78670, AA689746, AA407939, AA895424,  
AA437599, AA458399, AA030560, AA030489, W80107, W48258, AA144352, AA004176,  
AA615776, R75143, AA466510, W13581, AA499866, AA048392, AA041806, W97014,  
AA546598, AA793148, W97582, W77362, AI036895, AA183698, AA172814, AA734263,  
AA863778, AA920734, AA892250, C06762, AA963227, Z81273, AA926135, AA606207,  
10 C30878, D64256, C11212, D66838, C36812, Z46534, AA952462, T01063, C62825, C82691,  
C83547, C11135, C35400, C36191, C37922, C52379, C53002, C53210, D65094, C30013,  
D65326, T38438, D35865, D67867, D36626, D34352, D66537, AA859646.

15 SEQ ID NO:627

D26549, X78479, Y13971, U04354, X65371, J03781, X65372, X60648, X66975, X62006,  
X74565, X93009, X60790, X52101, X60789, U80441, X13319, AL008720, M97227, D26549,  
X78479, Y13971, U04354, X65371, J03781, X65372, X60648, X66975, X62006, X74565,  
20 X93009, X60790, X52101, X60789, U80441, X13319, AL008720, M97227, W74992,  
AA691889, W80100, AA543962, AA239612, AA067051, AA510839, AA880330, AA103223,  
AA032335, AA241020, AA472546, AA140271, AA624932, F14654, C67840, T04745, T45717,  
R64741, AA391093, AA392664, U74156, R64841, T43199, L33593, AA264205, T44358,  
AA438301, R90252, T46026, R65202, T45716, T43447, T43329, AA391723, R30497, N65841,  
25 AA979157, AA540501, H76846, D24187, C07146, AA660623, C68663.

SEQ ID NO:628

30 AC002300, AC004668, Z97180, AP000045, AC004517, AC003663, U91328, U91323, D38524,  
AC004486, AC004381, AC004241, AP000018, AC004638, AC003077, AC000372, AC005251,  
Z73358, AC002297, Z97195, AC002069, AL009172, Z97181, AC004551, Z75890, Z98750,  
AC000403, AF006501, AC004231, AC003043, AC002451, AC003108, AC002504, Z69722,  
AC002091, U85195, D87675, AC002531, AE000658, AC002312, Z97352, AC000085,  
35 AC003002, U52112, Z82203, Z83732, AC002477, AC002558, AC002464, Z99715, AC000094,  
AC000379, AC005191, AL021939, L78810, AC003006, U62292, AC004045, AC004216,  
AC002325, AP000009, AC002115, AL020991, Z83838, AF064862, AC003010, AC004593,  
Z83821, AF038458, AC003098, Z49235, U63721, D83253, AC000120, AC004097, Z68325,  
AC002468, D86995, Z94802, AF053356, Z84720, AF001551, AC005152, AL022165,  
40 AC005255, AC004492, AC002366, M10612, AC004602, AC000092, Z93021, AL022150,  
AC004525, Z82171, AL021366, AP000039, AC004685, Z97184, Z46936, AC002310,  
AA654529, AA179516, AA180257, T57755, T25705, AI038547, AA349493, W60354, N63618,  
AA443610, AA404619, AA143418, H88124, F01116, AA099289, AA828045, AA427421,  
AA621376, AA297135, AA831471, D44899, N29105, AA244421, AA946641, AA702717,  
45 AA147768, AA664126, AA486786, T09219, H92092, AA020943, AA282820, T94686,  
AA345202, W01475, AA773547, AA083003, AA485720, AA301608, AA037725, AA604601,

AA809787, AA634547, H81602, AA309341, T71474, AA528554, AA190594, AA731008,  
AA743445, H49231, H48748, AA491681, AA613761, C18590, T46998, AA102054, N57681,  
AA078221, AA948726, F00212, AI051670, AA464887, AA282856, H47736, AA133568,  
AA551181, AA713768, R86114, AA458534, AA601728, AA715850, AA890235, AA192640,  
5 AA568198, H66037, AA258216, AA507612, AA112924, AA568747, H55779, AA002078,  
~~AA991512, AA171907, AA582077, AA525464, AA648840, AA788904, AA916168,~~  
AA531580, AA613232, AA354123, AA570797, AA826223, AA729755, AA019973,  
AA994233, AA644347, H53109, AA021354, AA517646, AA516629, AA516955, AA474026,  
AA823826, W64166, AA930142, AA198601, AA921442, AA537628, AA550283, Z69957,  
10 AI044039, H39426, H39321, C23823, C93174, H39330.

## SEQ ID NO:629

15 X78479, D26549, U04354, Y13971, AF059486, AF041448, J04953, AF041449, AP000003,  
AB009484, Z29534, Z68104, X13871, U31699, X04412, X68039, D16513, U55045, X98992,  
AE001101, D10444, AA173831, AA366630, AA188584, R15617, N98954, AA991330,  
AA855151, AA612690, H42803, AA994947, AA994943, H26306, W45721, AA019754,  
AA292928, AA743326, AA991699, AA017180, AA700488, AA743280, AA782612, N91409,  
20 H14692, R85933, H86532, H86580, AA490729, AA522529, D25700, AA995943, AA472387,  
AA762354, AA562254, W54664, AA473866, AA462522, AA511598, AA409040, AA592243,  
AA555737, W98896, AA667740, W42118, W29218, W98220, AA000407, AA423745,  
AA674212, AA212842, AA880506, AA140271, AA562384, AA419868, AA544004,  
AA655579, AA839472, D19245, AA399939, AA178174, AA104840, AA821286, AA864106,  
25 AA795939, AA222567, AA616785, AI019774, AA896528, AA198892, AA624292, AI037083,  
AA080054, AA403711, AA589362, AA896865, AA470245, W18039, F14654, F13580,  
D47825, D15888, AA951952, AA996847, C11309, C31524, C37339, C37719, H35806,  
U31300.

30

## SEQ ID NO:630

D26549, X78479, U04354, Y13971, AL009172, AC002310, U80017, U62292, U63721,  
U91323, U14573, AC002351, U52111, M63796, AC003690, L78810, AC003687, Z95115,  
35 Y10196, AC004491, AF001550, Z98950, AC004222, AC005261, AC000025, AC004638,  
AC004383, M26434, AC004659, AC003982, AC002504, AL021546, AF030876, AF031078,  
AC004623, AC004448, AC000118, Z54246, AC002400, Z97352, AC003043, AF001549,  
AC000085, AF029308, Z83822, AC004685, AP000047, Z47066, AC003108, AJ003147,  
U91318, U91328, U95742, AF038458, AC002110, AC004755, AC004699, AC004031,  
40 AC005190, AC004770, AD000092, U14574, AC003103, Z81369, AC002425, AL021939,  
AC004447, AL021878, Z86000, Z82201, AC002312, AC002476, AC002430, AC005189,  
AC004752, L47234, AC000003, AC002073, Z74617, AE000658, Z94801, U85195, AC004152,  
Z84480, AL008636, AL021940, AC001228, AL009181, Z79996, U91326, AC002300, Z99570,  
D86995, AF003529, AL008725, AC002996, U47924, AC000045, AC005202, AL022162,  
45 AA654529, T57755, AA180257, AA179516, AA180256, AA664126, R92640, AA593752,  
AA342681, AA613761, AA503019, R98218, AA810837, H53109, AA658934, AA593828,

- AA640617, H68343, AI031759, AA745524, AA829044, AA947369, F17537, AA729755,  
AI028510, AA992126, AA122223, T03576, D58782, N64587, H62524, AA297666, AA984920,  
AA152253, AA655005, R23873, AA683069, AA262752, AA779783, AA525331, AA837597,  
AA614254, AA230025, AA808780, AA224889, N90460, AA526542, AA621381, AA224463,  
5 AA077776, N23046, AA630535, T57767, AA180857, N22032, AA491681, H71678,  
~~AA984187, AA535216, H15241, AA664604, AA448221, AA054170, AA558404, D44899,~~  
AA846014, AA059369, AA604515, AA708021, AA653713, AA610255, W68328, AA021354,  
N58329, F02412, AA458534, AA112924, AA703818, AA621720, AA757406, N78600,  
AI002952, AA564642, AA668421, AA632907, AA468975, H85383, AI038304, AA463590,  
10 AA347426, AA228442, AA515631, AA502498, T15977, AA133568, AA719433, AA601327,  
H29914, AA988600, AA405798, C88111, W64166, AA823826, W51648, AA501297,  
AA474026, AA516955, AA516629, AA517646, AA501217, AA501128, C87922, W62377,  
AA414764, AA863851, C86532, W64884, AA839894, W61986, AA544053, AA163924,  
AA863837, AA990245, AA638449, AA560402, AA717794, W97167, AA939976, AA030390,  
15 AA920656, AA265602, AA242102, AA517461, AA138366, AA049041, AA253992,  
AA216836, AA138380, AA138372, AA712062, AA501262, AA124697, AA638888,  
AA590502, AA240430, AA561642, AA476035, AA717921, AA250237, AA267021,  
AA671212, AA073320, AA276812, W10838, AI048072, C87438, AA199111, C87864,  
AA199424, AA199420, AA028411, AA184625, C79718, AA726578, AA670662, AA397113,  
20 AA386877, W97045, W97935, AA008153, W18022, C77490, AA260786, AA409489,  
AA407868, W77222, AA386879, W18014, AA163505, AA067993, W82457, AA645726,  
C85347, W14672, AA522152, AA200484, AA271588, AA572175, AA795999, AA271536,  
AA030201, C88193, AA119993, AA395985, AA959908, AA266467, W65543, AA209694,  
AA270169, AI044039, AA550283, AA107123, H39321, H39426, AA923995, H39328, H39389,  
25 Z69957, W06387, AI008183, AA894110, H39351, D85806, H33967, AA874831, AA859718,  
Z36495, AA893806, AA942712, AI028965, AI009485, AA998556, AA817848, AA800974,  
AA924449, AA925125, AA818876, H31489, AA800963, AI009626, AA893994, AA859010,  
H39330, AA850898, H33511, AI012741, AA618974, AA979650, AI029815, AA944790,  
AA859198, AA925965, C43475, AA996923, AA858572, AA550596, AA891642, C44355,  
30 AA957108, AA942692, AA859214, AI044945, AA817797, AA943379, AI045812, H33071,  
AA964244, AA849868, AI045480, AA799436, AI009418, AA799649, AI044609, AA849562,  
AA892292, AA946046, AI029897, AA658796, AA800219, AA891712, AA900964, N38652,  
AA799356, AA819525, AA899688, AI030084, AA943060, AA924367, L38123, AA892418,  
AI008029, AA900020, H39329, AI008765, AA056877, AA944220, AA892448, N41097.

35

SEQ ID NO:631

- Y14443, AJ003147, U09413, X78925, AC005261, X07290, AF031656, L20450, AF027139,  
40 X84801, U37263, M88359, U37251, X79828, AC004696, AL022393, U78722, X52343,  
M77171, X17617, M36146, X16281, U29512, AC003682, M77173, M15709, D10632,  
AC004232, U60763, X64413, U09367, L15309, Y00850, D88827, X89264, AF024708,  
AF024693, U35376, X52334, X52533, X78924, U09848, S54641, AF022818, L32164, D50419,  
Z29121, X77744, X83496, AF020591, X65233, X89631, X89632, X89629, X89630, Z96138,  
45 X12593, AF031657, M20675, M36516, L77247, M27878, M27877, U66561, X68011, X06021,  
U31248, AF027140, X70394, AA631979, AA278662, AA089485, AA632298, AA115318,

- AA481221, AA743098, T12540, AA255747, AA262064, AA768909, AA457311, R98364, R18845, W31899, C05700, T08471, AA626677, AA757980, F06362, T26645, AA760927, R25565, W27300, H17412, AA148577, AA284223, AA076467, N89159, AA085637, AA351209, AA379532, W26008, AA134718, AA376773, AA492007, AA159900, W26015, 5 AA321575, AA552236, AA305054, AA211186, AA176490, AA385633, AI033507, AA837846, AA134518, AA136720, AA805052, H81495, N89434, AA130554, AA279733, AA714166, AA283909, AA299149, AA176763, T84358, AA332875, AA485008, AA903551, T63342, W28368, AA295275, AA360436, AI028211, N92000, AA974380, T28391, H78719, AF026090, AA665316, R82475, T64395, AA838384, AA495843, H64444, N53129, AA234320, 10 AA682749, T93801, R98366, AA083811, Z21091, R99396, AA349969, AA166907, AA140301, AA154311, AA102943, AA666789, AA522401, AA980878, AA144467, W75531, AA980960, AA122779, AA414083, AA072856, AA155148, AA726681, AA517494, AA427186, AA172972, AA981211, AA474782, AA432622, AA119762, AA981587, AA879690, AA792248, AA575639, AA286209, AA546652, AA451439, AA119538, 15 AA940187, AA529691, AA798457, W33741, AI035795, AI036660, AI037302, AA896035, AA267120, AA451420, AA537315, AA271667, AA615956, AA444998, AA611316, AA646002, AA832620, AA624111, AA896323, AA799068, AA409820, AA036225, AA476109, AA562383, AA414390, AA940009, AA272824, AA014577, AA259489, AA061989, AA117053, AA120738, AA522022, AA189434, AA499647, AI048018, AA438234, 20 AA178652, AA791081, AA930487, AA120389, AA624117, AA242194, AA269934, AA920944, AA285425, AA726429, AA646425, R46897, D66035, D65928, C10220, D66687, D66778, H34728, D66501, D66247, AA999112, AI030817, AA497308, H31225, D49111, T42823, C94399, N65363, AA661022, C89975, D48522, AA964732, D49235, C2494j, C73815.

25

SEQ ID NO:632

- Y14443, AJ003147, M14916, Z81494, U29082, AF017732, Z73911, AF003131, X51668, 30 AC004759, AC004656, U80436, AA732442, AA631979, AA593878, AA291304, AA262034, R01991, AA255747, AA627492, N47920, AA873393, AA887730, AI015953, AA406395, AA153797, AA929315, AA692551, AI007053, AA739013, AA105758, AI012832, AA859163, AA819622, D39550, AA818075.

35

SEQ ID NO:633

- AC004008, M92067, M69197, AL021878, D50063, AC004695, AF064866, AL021069, Z95619, U93364, AC002431, Z95704, AC004237, U38804, X62629, Z92833, AA423848, 40 AA280614, AA731338, N23116, AA742613, AA258860, N57005, AA854469, AA782404, AA807189, AA831404, H30390, R23996, AA782590, AA971238, AA809886, AA190774, W16797, C20889, AA155945, T82345, AA314705, H50724, AA602748, H80389, H19587, R74835, AA413238, AA178109, AA960395, AA183534, AA475065, AA794857, AA184298, AA185033, AA423706, AA274210, AA183790, AA789673, AA619473, AA245620, 45 AA066974, AA200313, AA266621, AA792984, AA939691, AA288499, AA185159, AA823019, AA174638, AA175350, AA207570, AA607108, AA673670, AA163538,

AA838848, AA739428, AA163136, AA221341, AI030559, C90551, C84686, AA957321, D69601, Z47385, C56105, N98009, F15477, R30601, AA900326, R03393, C56081, C55758.

5 SEQ ID NO:634

Z54200, U41531, AF067217, X81410, Z71265, U17801, Z96810, AJ003215, AJ003216, Y10159, AF026212, S80990, U42409, U41034, M73780, Z67738, AE001100, Z73425, M90056, AE001099, U00064, W60281, AA680145, T86901, W60373, AA218706, N93247, 10 W56709, AA199800, R06131, F13709, W38951, AA721305, AA337162, AA557221, AA037000, AA349130, R12401, AA775324, W83919, AA543805, AA529559, C25736, C61804, C50051, AA851369, AA960680, U83036, H35098, AA818185, H35338, AA696994, AA686311, AA851225, AA945587, AI013839, H33949, AA109384, C92455, D34940, T41855, D68179, C93045, AA999008, C84817, AA532276, C64377, AA824888, AI045039, F20039, 15 AI044338, AA963225, AI029296, D27869, N43256, AA397497, AA550204, AA850498, C25785, AA944580.

SEQ ID NO:635

20 Z54200, D26155, Z93378, X72889, U00058, AF038606, Z84469, AC004681, U76670, U67078, M27902, AB011480, D45415, X77934, M64598, Y13467, X91638, Z75184, U09176, U50198, AL022603, Z69788, U33007, AP000039, M86524, Z73197, M10217, AB002306, AB011169, X89633, Z75287, U13679, X15731, M27394, L23419, Z81089, X12530, X07203, U72994, 25 U23812, X02132, AF068711, Z79596, Z71559, L09751, L25366, Y10377, X04370, N34282, AA610128, N71690, AA854773, N47938, N49144, AA918304, AA167189, T66784, AA805205, H25330, H25289, N52314, AA652836, AA131710, N75170, R58771, W25576, AA131614, D63227, D78795, AA001851, N25952, W58590, W23618, AA280389, N89632, AA767765, AA814248, H25876, AA825351, AA737003, AA513727, H04156, H47032, 30 N31899, W58591, H45977, AA775683, AA931504, H49974, AA058584, AA311717, H72527, T25345, AA309867, W28719, T84451, H82040, W31951, AA465009, R62852, AA303052, AA303053, T03658, W92852, AA258330, AA259258, AA352117, AA664208, D56028, AA743062, AA380958, D56068, R98913, H99963, AA046850, T32554, T72763, W94845, N40981, AA622286, AA651656, R32958, AA961221, H84967, W21827, AA251330, 35 AA403185, AA807661, R36454, R94395, H94380, W79361, AA019638, AA491878, AA211395, AA506410, AA091050, AA304445, AA115008, N64745, W69704, H64488, AI036578, W08769, AA162744, AA114610, AA105703, AA409436, AA212648, AA561603, AA116847, AA753333, AI026325, AA874856, D41787, AA898754, L38222, H33856, AA471583, AA898788, AA480694, C10474, C68085, C66182, D74603, C71511, AI009431, 40 AA754480, AI043271, T38339, AA949284, D34889, C19752, D26772, AA950431, AA392732, C69941, C35127, AA923982, T15164, D37487, D32968, AA585623, AA263433, AA753112, AA787504, AI035055, D26773, C38447, AA157786, C30905, AA246991, C07325, AA942419, D33726, AA997367, D34334, C72445.

45

SEQ ID NO:636

Z74615, K01228, Z78279, S64596, X06269, AF017178, U03419, U08020, M32798, M32790, M55998, S67482, V00401, J00836, M10571, X06753, U50767, X15896, J00113, M27208, AB015440, X57981, M12199, D83228, L00063, M27207, X02373, U62528, X02420, X06268, L10347, J00116, X16468, U75405, M17866, M65161, M63708, L48440, U23822, M17504, 5 D88764, V00390, J00838, M25983, J00820, AC002528, AF004877, J03464, Z74616, V00503, X55525, M36662, AF035120, AB008683, M63595, M63596, X70369, AI005395, D49399, M12200, X58251, L24034, U68412, S67495, X52046, AF036704, AA788961, AA789233, AA704140, AA554805, AA456909, AA594126, AA703999, AA599521, AA489802, AA434079, AA669422, AA456983, AA453741, AA599208, AA599300, AA522696, 10 AA256247, AA599762, AA427641, AA953103, AA564675, AA595560, AA600032, AA602898, AA975668, AA399202, AA772878, AA453822, N26572, AA487514, AA453844, D79055, AA827555, AA292300, AA983262, AA446927, AA669785, AA600271, AA284550, AA586696, AA453760, AA669870, AA780725, AA489810, AA457264, AA600020, AA256158, AA669998, AA988677, AA977821, AA594770, AA293101, AA600282, 15 AA669843, AA593813, AA486114, AA668442, AA617730, AA522675, AA653779, AA669973, AA405497, AA256215, AA613975, AA668635, AA599428, AA600269, AA599483, AA434290, W49666, AA599996, AA985499, AA663268, AA668601, AA664460, AA181457, AA937318, AA293155, AA284822, H39823, AA457761, AA487276, AA668540, R50997, H39824, AA457605, AA780459, AA457292, AA670229, AA121852, AA663273, 20 AA961662, AA759186, AA847723, AA477812, N49216, AA176648, AA987731, AA985449, AA551267, AA589384, AA619671, AA760498, AA498527, AA710766, AA245636, AA061236, AA008391, W97122, AA880603, AA048572, AA727786, W15958, AA799103, W50610, AA239145, AA498716, AA021772, AA008616, AA221649, AA286140, AA760025, AA914858, AA756818, W11818, AA067665, AA733749, AA563406, AA003166, AA755655, 25 AA717738, AA220654, W15796, W41217, AA231180, AA592286, AA572133, W97003, AA230997, AA008230, AA146453, AA914875, AA791164, AA050608, AA175736, AA799161, AA646848, AA274801, W16311, W07999, W43936, AA230929, W64655, W11321, AA756734, AA616738, AA245567, AA067771, W17438, AA790612, W76771, AA240871, AA168805, AA498114, AA733650, W20796, AA061273, AA793607, W63897, 30 AA499466, AA840346, AA049905, W66592, AA265649, AA738908, AA068229, AA821411, W40688, AA930430, AA171030, AA049870, AA253899, AA016519, AA285759, W47703, AA221672, AA466398, AA500545, W62413, AA759986, W78542, AA097381, W11675, W11136, W98082, AA050788, AA572204, AA286523, W82139, AA086991, AA924727, AA925689, R46881, R46996, R46997, C95060, AI008052, R47025, AA957191, AI001468, 35 N82871, C82569, C83425, AA819207, C94922, AA605894, C94535, R46990, N60615, AA659942, H32295, C13058, C49897, C43039.

SEQ ID NO: 637

40

AF039575, D55672, M94630, D55673, U11274, X16933, D55671, D55674, U02019, X03910, AF026126, U11273, U76713, M65028, Z36844, X70151, AE000696, U14942, Z32682, X56877, AC002106, Z48612, AC002107, Z97342, U41276, M37249, X80340, AI002518, AA411615, AA285116, AA613845, AA488767, H88010, AA577517, AA505693, W76314, 45 AA398152, AA830698, AA827418, AA861968, AA205538, R78209, AA825414, AI041755, AA132323, AA399572, AI031590, AI051151, D59165, AA683349, AA480614, AA574124,

AA885552, AA283263, AA974450, AA046949, W72288, T59548, AA987597, F22113,  
AA729692, AA160192, AA627344, W16765, W74620, AA579951, AA847462, AA410659,  
AA946935, AA668933, N34405, R53382, D55170, AA483980, AA160191, T20305,  
AA887151, D54861, AA384877, D53019, AA344109, W44942, N67235, AA316323,  
5 AA204898, AA522627, AA352838, AA988140, AA363135, AA013331, AA010071,  
~~AA385528, H88233, W94321, AA279437, N48686, AA973105, H85798, AA434371,~~  
AA132221, W85871, N55528, AA905527, AA583315, W39592, AA090932, H89244,  
AA534156, H13446, N79247, R91421, H49549, R69888, AA173703, AA770030, AA358784,  
AA256832, T59503, H70985, AA502474, AA213892, R30889, H70903, H49797, N48638,  
10 AA340787, AA305742, W64667, AA555733, AA168581, W10983, AA221785, AA120477,  
AA268992, AA048457, AA162021, AA461673, AA562015, AA123096, AA123285,  
AA222476, AA044466, AA049003, AA270438, AA114724, AA866856, AA049523,  
AA014296, AA863513, AA032652, AA174300, AA154330, AA170394, AA177845,  
AA521669, W85317, W41617, AA154631, AA645815, W98500, AA120123, AA185499,  
15 AA177390, W97739, AA153924, AA591486, AA555908, AA155285, AA222484, W15850,  
C78010, AA855800, AA543945, AA710243, AA137791, AA880182, W34924, AA930473,  
AA014937, AA033018, AA475204, AI050524, AA089262, AA068980, AA072859, AA000003,  
W82110, AA072954, W83119, AA213095, AA253676, AA472723, AA869343, AA957413,  
AA925245, AA945952, AA944182, H32050, H33819, AA963461, AA661101, AA659953,  
20 AA924879, T02275, C34098, C47987, C33433, AA694919, AA605613, AA751567, C46118,  
D37610, C72712, AA495419, C63143, C46160, AA605760, AA495494, AA606037, D22637,  
C28167, C94052, AA750434, AJ227709, AA753713, AA963457, W96792, D34724, H56888,  
AA494606, AA924835, AA605898, D67818.

25

SEQ ID NO: 638

D55671, D55674, D55672, D55673, AF039575, M94630, U02019, U11274, X16933, U11273,  
X03910, AF026126, Z36844, U76713, M65028, AE000696, M37249, X56877, U05173,  
30 AC002106, AC002107, Z93286, Z48612, X80340, U14942, AA132323, R78209, AA988140,  
AA627344, AA363135, T59548, T20305, H70985, AA384877, AA358784, H88010, AI002518,  
AA340787, AA946935, AA385528, AA305742, AA173703, AA090932, W39592, W94321,  
AA332014, AA223769, N87676, AA905527, AA411615, AA092934, AA316323, C02355,  
R47891, AA344992, N89279, AA861968, AA094588, AA285116, AA304460, AA488767,  
35 N48638, AA353432, AA046475, AA613845, AA338080, W74620, AA352838, AA205538,  
W76314, AA505693, AA577517, AA283263, AA830698, AA046949, AA160192, AA483980,  
AA502474, AA410659, AA356928, AA379701, AA143684, N34405, AA344109, AA013331,  
H49797, AA827418, AA398152, AA683349, AA971745, AA825414, AA574124, AI041755,  
AA865626, W37362, W93291, D54448, AA677971, C05341, AA677711, AA129356,  
40 AA338283, AA384719, W72288, R33263, R18732, R23523, AA311332, AA384993,  
AA172067, AA046901, AA164820, AA164816, T30093, T31747, T36263, T64849, T15345,  
AA353647, T59275, R18789, AA442927, AA120477, AA048457, AA562015, AA268992,  
W64667, AA114724, AA014296, AA555733, AA032652, AA154631, AA120123, AA049003,  
W97739, AA049523, AA044466, AA591486, AA153924, W41617, AA155285, W85317,  
45 AA863513, AA168581, AA015138, W10983, AA162021, AA645815, AA221785, AA222476,  
AA120152, AA461673, AI007232, AI019790, W15850, AA035909, W75459, AA437919,

AA986586, AA089262, AI050524, W75484, H33819, H32050, AA957413, AA925245, AA659953, AA661101, D37610, D34724, AI029342, C46160, AA750434, AA753713, AA694919, D22637, C28167, C63143, AA754624, C46118, AA942550, C94052, AA963457, AA525556, C72712.

5

---

SEQ ID NO: 639

- AF026126, D55672, D55674, U02019, U11273, AF039575, M94630, X03910, D55673,  
10 D55671, U11274, U21972, U22008, U21971, U21978, X15901, U21977, U21974, U22007,  
Z14148, U96876, AI017414, AA843750, AA971745, AA454880, AA213813, AA969279,  
AA284959, AA825717, AA214580, AA502793, AA013237, AA651955, AA836435,  
AA828387, AA046475, AA018680, H84906, AA305742, AA304460, AA338080, AA344992,  
AA988140, AA353432, AA223769, AA356928, R47891, AA384719, AA100533, AA379701,  
15 AA094588, AA368538, AA102724, H70985, N89279, AA092934, AA340787, AA143684,  
AA836218, AA132323, N87676, W65331, AA732335, AA034416, T97193, H65962,  
AA811382, H63476, W94690, AA482166, AA491400, AA743022, F19524, H67426,  
AA701488, AA348504, AA240478, AA014296, AA120123, AA114724, AA154631,  
AA155285, AA015138, AA052740, AA562015, AA153924, W97739, AA120477, AA591486,  
20 AA111410, AA981652, AA895128, AA863853, AA239252, W61764, AA968268, AA423742,  
AA414086, AA163047, AA546846, AA920420, H33819, AI013665, AA957530, AA979924,  
AA392608, AA998125, D15172, C22287, C23371, AA950874, C23197, C23370, C23327.

25 SEQ ID NO: 640

- U77456, AC001228, U51281, D12618, M86667, X61449, U31633, AF009647, M37893,  
U43188, AC002418, AL009177, AL023280, U43189, AL023094, AI016522, R48876,  
AA917462, AA938463, H92201, R48773, N48113, H92347, R19751, W86729, N71060,  
30 AA554566, AA774179, AA632813, AA305042, Z21160, W68381, AA422160, AA082230,  
AA084933, AA091376, W67341, AA463350, AA504634, AA303999, N88683, AA642209,  
AA862276, X98428, H41078, AA057001, AA071214, AA375168, D82110, AA173360,  
AA223329, AA662886, AA311655, AA748043, R93829, AA456144, AA747916, W67231,  
AA083297, AA127585, AA622598, AI025070, AA251168, AA313902, AA988824, AA992418,  
35 AA504969, AA504982, AI048867, W50655, W78317, D21690, AA646147, AA545087,  
AA106981, AA589661, AA692748, AA546894, AA122854, AA414773, AA823409,  
AA529543, AA111345, AA111456, AA555821, AA571538, AA073118, AA445062,  
AA444251, AA120399, AA756108, W99877, AA172977, AA822787, AA832946, AA062108,  
AA239139, AA616781, AA107614, AA265677, D19206, AA290486, AA672731, AA269940,  
40 AA290027, W75858, W71454, W30067, W33469, AA915161, AA574532, AA725966,  
W54713, AA016588, AA178755, AA762767, AA088126, AA414161, AA107862, AA790496,  
AA939593, AA153479, AA154763, AA799449, AA849947, AA866472, AA899456,  
AA997667, T13866, Z33688, W43783, AA550307, W59841, AA686844, T42545, AA598004,  
C71012, Z25726, Z34234, AA042685, AA598003, AA963554, AA962942, T45200, AA849723,  
45 C13218, AA264542, AA394404, N82818, AA113719.



SEQ ID NO: 641

AC001228, U51281, U77456, X61449, D12618, AE000687, AC004752, AF042838, D21877,  
U75744, AF047354, AC005192, Z98257, AC003964, Z83236, X64346, AL023280, Z14148,  
5 U56814, M86409, L43052, AI022077, AA702914, AA676892, R11795, F06995, H07028,  
~~AA321115, AA324587, T11258, AA933707, AA243047, R19751, H25365, AA693729,~~  
AA723973, AA152285, AA452598, AA577597, AA131259, T89186, T73653, H57989,  
R56347, AA308328, R67289, AA496536, AA565583, AA600869, AA631012, AA704614,  
T56634, AA609890, AA618425, AA767706, AA228788, AA449013, AA587232, AA252703,  
10 H29250, AA551389, Z43476, W81191, F06616, F12256, W81759, AI005801, AA278035,  
AA561994, AA791968, AA509417, AA840260, AA162772, AA529403, AA260459,  
AA571122, AA571890, AA718405, AA254433, AA763859, W34203, AA879597, AA545087,  
W35074, AA412805, AA414161, AA288814, C77764, W87216, AA959385, AA117257,  
AA080490, W89902, AA799038, AA106981, AA204423, AA591289, AA683783, AA145450,  
15 C86607, R75114, AA592604, AA863799, AA270250, AA591467, AA798234, W13376,  
AA980121, AI020871, AA110920, AA408822, AA178617, AI005984, AA764575, AA517253,  
U83052, U83051, AI011922, AI008650, C41484, N97615, R90669, C44194, R95238, C65151,  
AA550344, AA606113, C90830, AI009597, AA841083, C91238, AA097115, AA606035,  
C84046, AA801364, T13682, F15462, N96508, AA721895, AA800831, C23689, Z26033,  
20 C92292, AA605962, C92220, AA606220, AA899235, C94470, C90155, C90591, C94228,  
AA956720, AA801365, AA394701.

SEQ ID NO: 642

25 S67071, L40392, U28734, X66366, Z73105, U31600, U67424, Y12488, AC004659, U46933,  
X83619, U18650, AC002324, AL009181, U31447, AL021920, U86962, Y09585, AB007648,  
AF020657, M91452, X62880, Z48153, D14886, AC004593, AF000943, X65692, U97193,  
Y15944, AC002433, Z82187, AL021407, M80571, L02534, AC003661, AC000022, Z97338,  
30 AE000665, AJ001515, U91325, Z49398, D14887, AC003685, D85434, X57201, M91451,  
AL022150, U20906, U17838, L31549, X77225, U20907, Z95559, X69465, X99384, Z99091,  
D45132, X75383, Z81525, AB001025, AA147323, C75219, AA180321, AI038854, AA513522,  
N24122, AA826001, AA621423, AA113317, T71578, AA829191, AA361495, AA334984,  
AA888518, AA147425, AA376840, T71726, AA304423, T60745, AA090285, T18537,  
35 AA776259, AA355425, W27491, X93861, N76507, W26196, D29591, W84460, T35539,  
AA974278, H19156, AA488476, N55978, AA770224, R87930, C03520, AA074879, N41585,  
AA065299, AA065300, AA459699, AA775452, AA864705, T85861, N55760, R55267,  
AA737681, AI014668, AI017017, N91426, R50149, AA306910, R52021, AA569993,  
AA854695, AI014669, AA812204, AA274725, AA624208, AA726045, AA530666, AA170655,  
40 AA690285, AA546306, AA666700, AA692975, AA168229, AA822093, AA921137,  
AA414037, AA207492, AA163040, AA712011, AA623900, AA863938, W33766, W53793,  
AA276125, AA210149, W81788, AI037781, AA863961, AA266872, AA068288, AA510967,  
AA273522, AA230836, AA240745, AA637449, AA960471, AI007139, AA278014, AA260506,  
AA067133, AA469668, AA184000, AA896287, AA674119, C85510, AA061335, AA717739,  
45 AI019258, AA895475, AA596421, AA793428, AA797955, AA815898, AA881218, AA467436,  
AA253768, AA798124, AA675676, L26732, AA404015, W89980, AA450653, AA467444,

AA517764, AA895398, AA592488, AA716849, AA795527, AA871936, AA445091,  
AA588982, C80585, AA623349, AA915557, AA015563, AA288169, AA673066, W29377,  
W65220, W97542, AA110483, AA096866, AA929628, AA123743, C80564, AA607305,  
AI036200, R47104, AA801288, N37967, C73752, D46463, D69867, AA395389, D47486,  
5 D46643, C33987, T23394, T14760, C57917, D72235, T02602, C34059, AA224681, C35832,  
~~C20153, C74612, AA520866, D48156, D32491, C24983, D48194, T02509, AA397498,~~  
AA933532, AA998231, AA098688, N37915, AA224648, T42040, AI043785, M79841,  
AA074017, D86754, N81731, AI011347, AA891553, AA898292, C93511, H35009, AA420925,  
C91629, C23431, AA933407, AA996961, AA945917, F20076, U94861, AI052940, C23848,  
10 AA685074, W99668, AA247097, AI043586, U94862, AA933520, W43801, C57017, C26078,  
AA089418, AI013481, T22782, H31546, N43198, AA899175, C61289, D24435, AA998158,  
D48024, AA023862, C62969, D40132, AA264439, C74704, AI008510, AT000376, D67546,  
H32221, AI011258, AA660699, AA943361, D39670, AA585752, C73502, AI026402, D21984,  
D15898, AA901367, AA957340, AI035125, L47867, F15112, AA879398.

15

SEQ ID NO: 643

Z79791, X95226, D13643, X95227, U26742, U46744, Z35849, X70844, U46745, AA489309,  
20 AA682981, D52988, AA134434, AA903135, D56210, D54461, Z19998, AA318031,  
AA113840, AI016394, AA744934, AA780331, AI004714, T91101, AA768498, AA993774,  
AA908522, AA532972, AA609007, AA720792, AA687778, AI002166, W60915, AA035115,  
AA563593, AA845320, AA883925, AA670296, AA628513, AA676251, AA147779, W61055,  
AA417085, AA412533, R99348, AA421332, N75319, N28019, N30220, W20481, N68929,  
25 W16625, W52766, AA995135, N36220, AA482324, AA725042, T61686, N89859, AA112870,  
AI004733, AA782100, AA018416, AA975996, AA501746, AA327943, N64300, N59261,  
W47586, T60392, H57505, T73126, AA724357, AA258388, D54607, AA019585, AA287736,  
AA525839, AA782815, AA410303, AA405908, AA577338, N94329, AA370066, R46294,  
AA333707, AA287070, N22752, AA437333, AA613126, AA489271, N99465, AA531557,  
30 AA349277, AA305667, AA349028, AA428819, H13595, AA479601, H15827, N35917,  
R98916, AA403237, N40295, AI033757, W04770, AA666669, AA571981, C76660, C76658,  
AI035391, C85948, AA919731, AA240590, AA498824, C79954, AA259416, AA762165,  
AA386664, AA651368, AA697927, AI008005, AA140681, AA803316, AA799305, C24953,  
AI032448, H32867, D49047.

35

SEQ ID NO: 644

AC003080, AP000034, U09871, Z70691, U26310, Z75746, Z75893, U93196, U49830,  
40 AC002287, AC003043, Z36753, AE000036, AC003676, AL021469, M34482, AE000046,  
AF064860, U35013, AE000004, AE000035, Y10196, Z66514, Z11115, M81688, M81689,  
AF016414, AC000076, AE000550, M29154, L08380, U97003, D86251, U10414, AC002456,  
Z37964, U40423, Z70289, U80843, U41748, AC002066, U97190, AL021480, U80028, Z98753,  
AC002341, Z54236, AB008264, L09750, Z48007, Z84814, U10402, U95090, X56851, Z68120,  
45 AE001117, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321,  
AA854206, AA643184, AA216596, W45570, AI038928, AA811726, AI027706, N28891,

- AA001737, N30763, AA603729, W90372, W92013, AA610141, AA148861, H97575,  
AA490320, AA535623, W94384, AA214609, W04711, AA424324, W68201, AA486288,  
H49322, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA953621,  
AI034146, W68202, W30934, W15581, AA693353, AA971954, H49323, AA205308,  
5 AA648400, H44141, H97860, AA114952, N20849, AA485269, AI004353, AA766793,  
~~AA804853, AA433927, N62700, AA114829, AA825778, AA007422, AA552090, AA579359,~~  
H10401, H01442, R82009, H69533, W31657, AA702752, AA430583, AA318373, R22948,  
AA779558, AA216543, AA329745, T97005, R82061, W67753, AA025477, R81522,  
AA774128, AA775160, T97120, AA996354, H48804, R34243, Z28536, H48810, AA513115,  
10 AA025396, H44062, D78892, T35994, AA287628, AA777768, C02732, AA628646, W90371,  
Z19475, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402,  
AA079914, AA822900, AA561771, AA560406, AA097088, AA254405, AA822893,  
AA623299, AA200448, AA444663, AA396152, AA863792, D18314, AA560556, AA790566,  
AA472424, AA183321, AA116991, AA960524, AA619931, AA538093, AA545942,  
15 AA980553, AA718602, AA624507, AA690917, AA690993, W36441, AA170629, AA270487,  
AA688806, AA855805, W71565, AA690916, AA718699, AA756480, AA162299, AA268163,  
AA414642, AA510718, AA168386, AA547224, AA759545, AA177481, AA798564,  
AA198582, AA958885, AA840456, AA959168, AA162089, AA474849, AA244613,  
AA245968, AA036386, AA183584, AA939932, AA759392, W71494, AA117622, AA168119,  
20 AA277326, AA286405, AA863529, AA416281, AA849531, AA848917, AA957315, AI009528,  
C06826, D39911, D22377, AA605573, Z18210, C32716, C90994, AA945230, C84183,  
AA899962, C93176, AA943491, C89903, AA438451, AA957108, C36068, W63192,  
AA990991, C94217, AI012441, D73182, AA850803, AA202444, W63171, AA925071,  
AA924397, C54804, AA925965, T02433, AI044720, N55612, AA161699, AI037825, N96377,  
25 W06489, AA550648, AA676066, AA898115, C90271, AA942692, AA842873, C62969,  
AA712502, AA997400, AA996923, AA890788, C54452, AI045785.

SEQ ID NO: 645

- 30 AE000004, AP000034, AE000035, U35013, AC003080, AE000046, AE000036, U26310,  
Z75746, U93196, Z75893, AC002287, Y10196, AC003043, Z36753, M34482, AC003676,  
AF043105, AE000002, U49830, AL021469, AF064860, AE000054, U40423, AF016414,  
AF036444, Z37964, U09871, AC000076, AB008264, Z66497, AE001117, X56851, Z66514,  
35 Z84814, AE000550, M29154, M81689, Z68120, AC002341, Z70289, U10402, D86251,  
U10414, AC004644, AL008971, Z98753, M81688, U97190, U95090, U80843, Z54236,  
Z70691, X82684, AB010068, U41748, U80028, Z11115, L09750, AL021480, AC004540,  
Z48007, U97003, AA431793, AA780210, AA527268, W74607, AA004205, N25768,  
AA854206, AA643184, AA630321, AA216596, AI038928, W45570, AA811726, AA001737,  
40 AI027706, N30763, W90372, AA603729, W92013, AA610141, AA148861, H97575, N28891,  
AA490320, AA535623, AA424324, AA678487, W04711, AA486288, N73273, W02793,  
W94384, AA165561, W68201, N67842, AA864358, H49322, AI034146, AA953621, W15581,  
W68202, AA693353, AA214609, W30934, H49323, AA648400, H97860, AA205308, N20849,  
AA766793, AA485269, AI004353, AA804853, AA433927, N62700, H44141, AA971954,  
45 AA114829, AA825778, AA007422, AA552090, H10401, AA579359, AA114952, H01442,  
R82009, H69533, AA702752, W67753, AA430583, R22948, AA779558, AA318373, T97005,

- R82061, AA774128, R81522, AA329745, AA775160, AA996354, W31657, H48804, R34243, Z28536, AA216543, H48810, AA025477, AA025396, AA513115, H44062, T97120, AA287628, AA777768, C02732, AA628646, D78892, T35994, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914,  
5 AA560406, AA254405, AA097088, AA561771, AA822900, AA444663, AA623299, ~~AA200448, AA396152, AA863792, D18314, AA790566, AA183321, AA560556, AA960524,~~  
AA472424, AA116991, AA268163, AA690916, AA414642, AA288151, AA980553, AA162299, AA270487, AA718602, AA718699, AA545942, AA538093, AA619931, AA624507, W71565, AA690993, AA690917, AA170629, AA756480, AA688806, AA855805,  
10 W36441, AA798564, AA168386, AA547224, C80271, AA759545, AA208995, W36262, AA958885, AA198582, AA546863, AA840456, AI046968, AA177481, AA896177, AA036386, AA474849, AA510718, AA959168, AA245968, AA155555, AA183584, AA759392, W71494, AA106584, AA117622, AA277326, AA286405, AA863529, AA416281, AA880395, AA939932, AA244613, AA162089, AA274576, AA048938, AA849531, AA848917,  
15 AA957315, AI009528, C32716, C23790, Z18210, D39911, AA605573, D22377, AA943491, C84183, C92834, AA945230, C90994, AA051845, C93176, AA438451, AA899962, C89903, AA550648, AA712502, AA898115, C90271, C23646, AA957108, AA925071, AA676066, AA997400, AI037825, C54452, C54804, AI012441, AA900113, W63192, D73182, C25562, C62969, AA842873, AA890788, AA996923, AI045785, T02433, N55612, AA202444,  
20 AI044720, AA942692, N96377, W06489, C36068, AA161699, C94217, AA990991, AA925965, W63171, AA924397, AA850803.

SEQ ID NO: 646

- 25 AP000034, AE000004, AE000035, AC003080, AE000046, AE000036, U35013, U26310, U93196, Z75893, Z75746, AC003676, AE000054, Y10196, U49830, AC002287, AF043105, AL009029, AF064860, Z36753, AL021469, AC003043, M34482, AE000002, Z66497, Z37964, M29154, L08380, Z66514, AC002456, U40423, AE000550, M81688, X56851, D86251,  
30 U12661, Z54236, AL021480, U41748, U80028, AC000076, Z11115, Z68120, AE001117, Z98753, U95090, Z70289, L09750, U80843, M81689, Z84814, AF016414, U97003, AL008971, AC002341, U10414, U10402, X82684, AF036444, U97190, AB008264, AC004644, Z48007, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321, AA854206, AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N28891,  
35 N30763, AA603729, W90372, AA610141, W92013, AA148861, H97575, AA490320, AA535623, W94384, W04711, AA424324, AA486288, AA678487, W68201, W02793, N73273, AA165561, H49322, AA864358, AA214609, N67842, AA953621, AI034146, W68202, W30934, W15581, AA693353, H49323, AA648400, H97860, AA205308, N20849, AA485269, AI004353, AA766793, AA804853, AA433927, AA114952, H44141, AA971954,  
40 N62700, AA114829, AA825778, AA007422, AA552090, AA579359, H10401, H01442, R82009, H69533, AA702752, AA430583, AA779558, R22948, AA318373, W31657, T97005, R82061, W67753, AA329745, R81522, AA774128, AA216543, AA775160, AA996354, AA025477, H48804, T97120, R34243, Z28536, H48810, AA513115, H44062, AA025396, D78892, T35994, AA287628, AA777768, C02732, AA628646, W90371, Z19475, R58722,  
45 AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA254405, AA097088, AA561771, AA822900, AA822893, AA444663,

AA623299, AA200448, AA396152, AA960524, AA560556, AA790566, AA116991,  
AA472424, AA183321, D18314, AA414642, AA268163, AA690916, AA756480, AA718699,  
AA270487, AA288151, AA162299, AA538093, AA619931, AA545942, AA980553,  
AA624507, W71565, AA688806, AA690993, AA690917, AA718602, AA170629, AA855805,  
5 W36441, AA849531, AA848917, AA957315, AI009528, C06826, C23790, D22377,  
~~AA605573, D39911, C32716, Z18210, C89903, C93176, AA899962, C90994, AA945230,~~  
AA438451, C84183, AA943491, AA051845, C92834, AI012441, AI045785, D73182, C62969,  
W06489, AA202444, AI044720, AA842873, AA890788, N55612, AA550648, C90271,  
AA996923, C25562, AA712502, AA997400, W63171, AA900113, AA924397, AA925071,  
10 AA957108, AA990991, C94217, W63192, AA676066, AA850803, AA925965, C36068,  
AA161699, C54452, AI037825, N96377, AA942692, C54804, T02433.

SEQ ID NO: 647

15 AF027390, U28686, M55673, AC004525, AF067611, U67212, AB009055, U70857, AF067216,  
AC000396, U95982, Z73905, AA002081, AA113127, AA831044, AA002245, AA805579,  
AA767554, W91985, AA430583, W91964, AA740770, AA768675, AA433927, N68306,  
AA765872, AA004288, AA113840, AA705271, AA903135, AA682981, R62689, AA345397,  
20 AA092407, T55643, AA356897, AA054406, T78803, AA305641, T72106, AA306222,  
AA001622, H00486, AA307902, W37253, R36350, AA313689, AA076252, AA085427,  
AA192462, AA143762, AA325775, AA177031, AA305815, AA004369, AA705484,  
AA001908, AA1811088, H81336, AA790191, AA105116, AA790153, AI006318, AA472674,  
AA027542, AA672120, AA939578, AA869414, AA414094, W09603, AA238985, D76727,  
25 AI021034, AA547630, AA983116, AA619440, AA139951, AA589062, AI046894, AA152861,  
AA538976, AA263759, AA140709, AA686756, AA686313, AA687033, AA736059, C93720,  
C91205, AA820697, AA990781.

30 SEQ ID NO: 648

U26310, Z70691, U09871, U49830, Z70289, Z81369, U95090, U80843, L08380, AC002456,  
U64604,  
AA527268, N28891, AA114952, AA214609, H49322, W68201, AA431793, AA780210,  
35 W94384, AA971954, W74607, AA535623, AA004205, W30934, N25768, H44141, AA643184,  
AA854206, AA630321, AA811726, AI038928, AA216596, W31657, AA216543, AA825778,  
W45570, AA001737, AA433927, N30763, AI027706, AA603729, R82009, T97120, W90372,  
D78892, AA610141, AA148861, AA025477, W92013, AA490320, AA678487, AA205308,  
H97575, AA424324, AA430583, T35994, AA318373, AA486288, W04711, AA165561,  
40 AA329745, W02793, AA774128, H49323, N73273, AA864358, W68202, AA953621,  
AI034146, N67842, W15581, AA996354, AA779558, N62700, W90371, Z19475, AA648400,  
AA693353, R62712, AA804853, AA766793, AI004353, AA485269, N20849, H97860,  
AA114829, R22948, W67753, R82061, AA007422, H01442, AA579359, AA552090, H10401,  
AA775160, AA025396, AA287628, AA777768, AA702752, C02732, Z28536, AA513115,  
45 R81522, H69533, R34243, H48804, AA628646, H48810, H44062, T97005, AA175464,  
AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406,

AA254405, AA097088, AA561771, AA822900, AA822893, AA623299, AA444663,  
AA790566, AA183321, AA396152, AA863792, AA960524, AA538093, W36441, AA849531,  
AA848917, AA957315, AI009528, C06826, AA955113, D22377, D39911, C90994, AA438451,  
C89903, C84183, C93176, D42886, AA998608, AA990991, AI012441, T01552, N55612,  
5 AI044720, AA997400, C65333, AA925071, W63192, C62969, C54804, W63171, AA850803,  
AA676066, AF034791, AA898115, AA842873.

---

SEQ ID NO: 649

10

AG000319, AG000328, AP000031, Z75739, Z60966, Z75725, AJ229063, D89894, AL023780,  
AC004625, N28891, AA527268, AA214609, H49322, AA971954, W68201, W94384, W30934,  
H44141, AA780210, AA431793, AA114952, W74607, AA535623, AA004205, AA854206,  
AA825778, AA643184, AA630321, AA811726, AI038928, AA216596, N25768, W45570,  
15 R82009, AA025477, AA433927, AI027706, AA001737, AA216543, N30763, AA329745,  
AA430583, AA603729, AA610141, AA318373, AA678487, AA490320, W31657, T97120,  
W90372, AA148861, AA165561, AA205308, AA424324, AA579359, H10401, AA486288,  
AA114829, N20849, H97860, AA766793, AI004353, AA485269, AA804853, W92013,  
AA693353, W15581, W68202, AA552090, N67842, H01442, R22948, H97575, AA775160,  
20 W04711, R82061, AA953621, N73273, W67753, W02793, AA864358, AA007422, AA996354,  
D78892, AA025396, AA774128, AA648400, AA287628, AA777768, R81522, AA702752,  
AI034146, T35994, Z28536, AA513115, R34243, H48804, H69533, H48810, H49323, H44062,  
T97005, AA779558, C02732, N62700, AA628646, W90371, Z19475, R62712, AA175464,  
AA200267, AA466843, AA608178, AA611918, AA396402, AA254405, AA561771,  
25 AA097088, AA822900, AA079914, AA560406, AA822893, AA462394, AI021677, AA289614,  
AA499550, AA849531, AA848917, AA957315, AI009528, C89903, C84183, C06826, C93176,  
C90994, AA413366.

30 SEQ ID NO: 650

AA527268, AA780210, N28891, AA535623, W74607, H49322, W94384, W30934, W68201,  
AA854206, AA643184, AA004205, AA825778, AI038928, AA811726, H44141, AA329745,  
AA216596, AA214609, AA490320, H97575, N30763, W04711, AA610141, AA424324,  
35 N73273, AA114829, W02793, AA552090, AA693353, W68202, AA486288, AA603729,  
W45570, W92013, H10401, AI027706, W15581, AA766793, AA953621, AA864358, H97860,  
AA431793, N25768, AI034146, N20849, AA485269, W90372, AI004353, AA804853,  
W67753, N67842, AA579359, H01442, AA165561, AA025396, AA971954, AA007422,  
R82061, R22948, AA148861, AA775160, R81522, AA433927, R82009, AA001737,  
40 AA648400, AA430583, AA777768, AA702752, AA287628, AA630321, AA678487,  
AA513115, AA996354, Z28536, AA318373, AA205308, C02732, AA774128, H49323,  
AA216543, AA779558, AA025477, AA628646, AA861724, N62700, AA114952, R58722,  
W31657, AA175464, AA200267, AA466843, AA608178, AA611918, AA499550, AI021677,  
AA957315, AA849531, AA848917, AI009701, AI029921.

45

SEQ ID NO: 651

- Z84480, AC003986, Z98048, AC004633, AL009029, AC000040, AC004638, AC002310, X92185, AC000127, AC000073, AC002312, Z68870, AC003687, AC002117, AC002468,  
5 AC002400, AC002554, AC003091, AL022098, Z99297, Z69918, AC002352, AC004149,  
U73628, AL021807, X65032, Z94721, AL022069, AC005159, AC003044, AJ229042,  
AC002430, AF051934, L09708, L78833, U66061, AC002076, U54776, AC002996, AC002300,  
AC004015, AL021978, U95743, AC002044, AC002496, AC004020, AC002550, AL008725,  
Z22585, X67330, AC004491, AC004098, AC002527, AC001644, Z75888, AP000046,  
10 AC000079, AC004026, Z73358, AC004031, AF045555, AC000068, AB009667, AC004623,  
Z69709, Z97196, AC002301, Z93242, Z99128, Z84474, AC002990, AC004129, AC004028,  
AF045450, AC004084, AC004760, AG000727, AC004475, U62293, AC003049, Z82244,  
X71875, AC002302, AC002351, AC000080, AL009181, Z75894, AC002390, AP000045,  
AP000036, D55653, Z82253, AC002425, AG000728, AC004517, AC004753, AC002455,  
15 AC003670, AC002126, AA903135, AA682981, AA489309, AA113840, D52988, D54461,  
AA134434, D56210, AA888777, AA640373, T52837, AA654840, AA834028, AA631497,  
AA330471, AA845333, AA525416, AA598617, F18761, H14617, H25846, H85053, H93717,  
AA632479, R94097, AA743968, AA077575, AA991824, C15811, W45283, AA350604,  
W45298, H12258, AA809049, AA486925, AA605266, AA668220, AA650623, AA770346,  
20 AA632765, D20297, AA844203, T04975, F07212, AA399458, H64635, AA486721, H57509,  
N25310, AA613340, AA886682, C75321, AA534852, AA713534, AA931946, AA423992,  
AA829710, R99168, AA501781, AA587316, AA608520, H47461, AA909004, AA468289,  
D53640, AA713762, AA015672, R97290, R98644, AA650434, AA993165, AA385624,  
AA705197, AA713933, AA984829, AA586553, AA669434, N70293, C16687, AA631469,  
25 AA654998, AA515622, AA213891, AA608682, D25667, AA077952, C14724, AA127486,  
AA291631, AA321731, AA767115, R16472, AA491796, AA532877, AA715351, AA728861,  
C05892, H91358, H83146, R12700, AA666669, AA571981, C76660, C76658, C85948,  
W62449, AI035391, AA240590, C87864, W62377, W77222, AA501262, C86532, AA863851,  
C87922, AA516955, AA501128, C88111, AA105887, AA896910, AI042998, AA409017,  
30 AA014190, AA072329, AA072325, AA014172, AA512244, AA259416, AA395985,  
AA717412, C78281, W61986, AA510250, AA833194, W30012, AA032516, C79954,  
AA596579, AI048618, AA939912, AA059596, H39328, H39389, W06387, AI044039,  
AA550283, AA107123, AA957502, AA697927, AA902002, D71747, C62166, D28215,  
AA497283, AA849396, D39166, H32867, AI008005, AA786815, D42500, H39351, AA944871,  
35 AA784952.

SEQ ID NO: 652

- 40 L32205, AL010138, AL010165, AA535623, AA780210, AA527268, W74607, AA643184,  
AA811726, AA004205, AI038928, AA854206, AA216596, AA825778, W68201, N28891,  
AA001737, W45570, AA433927, N30763, AA431793, AI027706, W30934, AA630321,  
W94384, H49322, AA603729, N25768, AA610141, AA490320, AA678487, AA205308,  
AA148861, W90372, AA424324, AA214609, H44141, AA430583, AA486288, AA329745,  
45 AA774128, W02793, AA165561, W04711, AA864358, AA971954, R82009, AA318373,  
AI034146, AA953621, W92013, AA996354, AA648400, H49323, N73273, N20849,

AA766793, H97860, AA693353, W15581, AA485269, R22948, AA007422, AA287628,  
AA779558, N67842, H10401, AA552090, H97575, H01442, AA114829, Z28536, AA579359,  
R82061, AI004353, AA804853, W68202, W67753, AA025396, AA513115, AA775160,  
AA777768, AA702752, R81522, H69533, R34243, H48804, N62700, H48810, T97005,  
5 H44062, AA114952, AA628646, C02732, AA025477, AA522818, AA847619, W88844,  
~~R22141, W01459, W37320, N55020, W19783, AA200267, AA608178, AA466843, AA175464,~~  
AA611918, AA396402, AA709702, AA848917, AA849531, AA957315, AI009528, AA550586,  
AA697047, AA605604, Z46823, AA650644, AA413366, C30585.

10

SEQ ID NO:653

U15617, X95227, Z35849, U82293, U46745, U26742, X95226, U46744, D13643, X70844,  
Z79791, U76713, Z50178, U40951, J03914, AE001179, M99412, Z61539, U11869, U41992,  
15 AB002770, AF038554, AF015250, M61219, AC003013, AA489309, D56210, D52988,  
AA134434, AA682981, AA903135, D54461, Z19998, AA318031, AI016394, AA687778,  
AA993774, AA768498, AA670296, AA035115, AA147779, AA563593, N75319, AA744934,  
AI004714, AA628513, R99348, AA908522, AA609007, W60915, T91101, AA883925,  
AA532972, AA676251, AA780331, AA720792, AI002166, AA845320, AA412533, AA421332,  
20 AA417085, W61055, W47586, R46294, AA405908, D54607, N99465, AA287070, AA428819,  
N28019, W52766, AA370066, T61686, H57505, N64300, AA482324, T73126, T60392,  
AA333707, AA327943, AA349028, AA489271, AA437333, W20481, W16625, AA501746,  
AA349277, AA479601, AA531557, H13595, R98916, AA305667, N40910, T35084, W38703,  
AA010090, AA022574, R94313, N78294, W56641, R91009, H58456, W76076, AI022640,  
25 R27744, W04829, AA005123, AA010323, AA403237, AA631040, R29030, AA827225,  
AI033757, AI042269, H59419, AA293537, T27962, W60575, D53706, W04770, AA313389,  
AA666669, AA571981, C76660, C76658, AI035391, C85948, AA240590, AA919731,  
AA498824, AA762165, AA386664, C79954, AA673446, AA259416, AA959223, AA272334,  
AA646012, AA510541, AA154530, AA008773, AA000331, AA288429, AA657001, AI006462,  
30 AI048383, AA982490, R75019, AA571971, AA027546, AA036334, AA510889, AA796514,  
AA537566, AA958507, W20716, AA265324, AA023384, AA016936, AA423763, AA801268,  
AA875628, AA651368, AA866323, C24953, AA894266, D49047, H32867, AA850861,  
D69875, AA956796, AI008005, AI032448.

35

SEQ ID NO:654

Z99273, U67953, Z81313, AC002465, AE000023, AI005405, AA770285, AA657756,  
AA974792, H21277, Z26749, AA836701.

40

SEQ ID NO:655

Z95152, AP000021, AC005142, M60558, D52988, AA134434, AA489309, D56210,  
45 AA318031, D54461, AA329851, Z19998, AA330339, W31813, AA045969, AA148860,  
W03446, AA682981, AA372730, AA578590, AI035391, C76658, AA919731, AA240590,



C76660, C85948, AA571981, AA666669, AA498824, AA388943, AA762165, AA472537, AA122715, AA667205, AA667224, D76492, AA666871, AA709900, Z81222, AA676087, D69875, M75876, C08849, N21886, D49047, D73949, C24953, AI035168, AA799646, AA817960, D75318, D74916, M89450.

5

## SEQ ID NO:656

- U49830, AA527268, N28891, AA780210, W68201, AA535623, W94384, AA431793,  
10 AA854206, W74607, H49322, N25768, AA004205, AA643184, AA811726, AA214609,  
AI038928, W30934, AA216596, AA630321, AA001737, N30763, AA433927, W45570,  
AI027706, AA825778, AA971954, AA603729, H44141, W90372, AA610141, AA490320,  
AA148861, AA678487, AA205308, AA424324, W92013, AA486288, H97575, W04711,  
AA430583, W02793, AA165561, R82009, H49323, AA114952, N73273, AA774128,  
15 AA864358, AA953621, AI034146, N67842, W68202, AA329745, AA318373, W15581,  
AA779558, AA648400, AA693353, N62700, AA996354, AA804853, AI004353, AA766793,  
AA485269, N20849, H97860, AA114829, AA025477, W31657, AA579359, AA216543,  
T97120, AA628646, AA007422, AA552090, H10401, AA287628, AA513115, Z28536,  
AA775160, R22948, R82061, W67753, H01442, AA025396, AA777768, AA702752, R81522,  
20 H69533, R34243, H48804, D78892, H48810, C02732, H44062, T97005, T35994, Z19475,  
W90371, R58722, AA175464, AA200267, AA611918, AA466843, AA608178, AA079914,  
AA396402, AA183321, AA790566, AA863792, AA396152, AA960524, C87361, AA183584,  
AA863529, W36441, AA288151, AA117622, AA547224, AA444663, C80271, AA848917,  
AA849531, AA957315, AI009528, AA850803, N55612, AI044720, C54804, D22377,  
25 AA997400, D39911, W63171, AI012441, W63192.

## SEQ ID NO:657

- 30 X58153, AC003700, AC004245, Z50071, M30637, M30636, M30634, Z71264, M30638,  
U82828, D14543, M30635, Z86062, X67013, D14855, M30631, M54967, S61093, M30639,  
M30632, AA134490, AA159064, AA953186, H73329, R96494, H73968, R96540, H69175,  
H69176, N55662, R58761, AA303255, AA347299, AA669506, AA886747, AA989283,  
W25922, W45117, R60251, Z41321, Z43491, AA156431, H52410, N80792, N77936, R25435,  
35 AA399012, R87450, AA104708, AA647687, AA462737, AA959332, AA472746, W29913,  
AA711760, AA619743, AA647530, AA183523, F15056, C65308, C65649, D36342, C22600,  
AA394738, AA858604, Z34567, C22479.

## 40 SEQ ID NO:658

- AC002294, U38766, AF032401, AC002402, U11280, AA279210, AA581835, AI024647,  
N54313, N52991, AA135938, AA398451, AA805397, AA218616, AA947182, AA630611,  
AA779113, AA595755, AA134491, AA157993, AA134938, AA626627, AA158040, R06239,  
45 AA534688, AA779904, AA809443, H68298, AI003531, AA861636, AA116036, T51634,  
AA678766, AA450276, AA936183, AA976920, AA911039, AA279247, AA807738,

AA809459, AA292987, N89268, AA007497, R41218, AA001925, R51333, R60061,  
AA460963, AA427825, T17090, Z39514, R51518, AA001787, R44963, AA163071, AI036451,  
N98055, AA851535, AA964600, AA943738.

5

SEQ ID NO:659

L13616, AC003700, Z50071, L05186, Z66499, Z98748, AC004245, Y15465, Z68760,  
AL009147, AC004537, AA116035, AA158654, H73968, R96494, AA333019, H69176,  
10 AA135066, N55662, AA306686, R58761, R60251, H05371, Z43491, W45117, W25922,  
AA953186, AA747180, R68966, AA134490, AA214233, AA074259, AA399012, AA160995,  
W53000, R85615, AA574060, AI024307, D29335, N44546, AA084308, R25435, W29913,  
AA940093, AA619743, AA511748, AA261674, AA647530, AA538165, AA982993,  
AA545089, AI036424, AA529339, AA879985, W62457, AA254472, W75639, AA208822,  
15 AA004009, AA409878, AA138461, AI021080, AA616351, AA543930, AA959058, AA499502,  
AA475012, W63887, AA795180, W34789, C85296, AA789667, AA062063, AA547678,  
C78232, AA109026, AA277809, AA269482, AA260214, AA238079, AA791781, AA109714,  
AA106556, W91188, W65867, W14105, W07936, AA980059, AA606818, AA637257,  
AA623142, AA615444, AA387662, AA059859, AA000704, W35722, AA959936, AA590762,  
20 AA414947, AA397041, AA389361, AA108256, W53991, W47904, AI036933, AA666729,  
W12225, W13053, AA789863, AA691401, AA589224, AA499829, AA754939, AA265414,  
AA243924, W82018, AI006283, AA960390, AA940209, AA815912, AA217857, AA623139,  
AA615486, AA607101, AA473102, AA276565, AA198445, AA182161, AA008144, C88603,  
AA840191, AA727235, AA667550, AA655635, AA646144, AA624299, AA543548,  
25 AA590150, AA549660, C65308, D36342, C65649, C22479, AA875582, AA193756, C22600,  
AA650866, C35248, H35407, AA841414, AA509175, C35507, N37412, T43566, AA819961,  
AI011305, T37927, T43575, AI026540, AA685518.

30 SEQ ID NO:660

AC002294, AL031005, U11280, X54108, AF068865, AA595755, AA157993, AA450276,  
AA158040, AA779904, H68298, AA861636, AA292987, AA936183, AA807738, AA279247,  
AA136254, T51792, AA279210, AA581835, AA805397, AI024647, AA218616, N52991,  
35 N54313, AA135938, AA398451, R29286, AA678766, AA947182, AA134491, N89268,  
AA134938, AA809443, AA630611, AA779113, R06239, R41286, AA534688, AA001787,  
AA062924, W19463, AA001925, AA315968, T65605, D59188, AA896634, AA607867,  
W91279, AA008398, AA163071, AA943738, AA964600, AA899773, AA851535, AF061647,  
AA800313, AA754101, C60136, AA892252.

40

SEQ ID NO:661

45 SEQ ID NO:662

X58153, AC003700, AC004245, Z50071, U05230, L14595, Z68760, L19444, U82828,  
AA134490, AA953186, R96494, H73968, H69176, AA159064, N55662, R58761, AA116035,  
H73329, H69175, R96540, AA669506, AA347299, W25922, H05371, R60251, W45117,  
Z43491, AA214233, R99846, AA399012, N80792, AA829863, R85615, D29335, R25435,  
5 R87450, N44546, W29913, AA711760, AA619743, AA511748, AA647530, AA183523,  
~~F15056, D36342, C65308, C65649, C22479, AA858604, AA394738, C22600, Z34567,~~  
AA875582, AA661100, AA246101, C90912, T43566, C90225, AI013370, AA901147, C90941,  
C35248, C35507, AA650866, T43575, C89939, T20877, M89254, AA509175, N37412.

10

SEQ ID NO:663

AC002294, AC002402, U11280, AA279210, AA581835, N52991, N54313, AI024647,  
AA135938, AA398451, AA218616, AA805397, AA947182, AA595755, AA630611,  
15 AA779113, AA157993, AA134491, AA134938, AA626627, AA158040, R06239, AA534688,  
AA809443, AA779904, AA861636, H68298, AI003531, AA450276, AA116036, T51634,  
AA678766, AA936183, AA976920, AA911039, AA279247, AA809459, AA807738,  
AA292987, N89268, AA427825, AA460963, R60061, T17090, Z39514, R51518, AA001787,  
AA001925, R51333, R41218, AI036451, N98055, AA680515, AA754101.

20

SEQ ID NO:664

X77775, U23183, U08424, AA496841, AA404288, AA723349, AA360888, W31361,  
25 AA338858, R34209, R18200, H46243, R18965, AA285293, AA384769, W45400, T98727,  
AA961263, AA370221, AA081534, AA359557, AA292148, W31566, AA088317, AA234934,  
AA908513, AA446803, AA416456, AA795971, AA240122, AA245397, AA920520,  
AA692621, AA759494, C86923, AA238578, W97258, AA222646, AA655219, AA893872,  
AA978469, AA264996, AA694953, AA390518, AA263890, AA949758, AA694972, W66565,  
30 AA735504, AA802703, AA264199, AA263929, AA264168, AA940694, F13855.

SEQ ID NO:665

35 Z83226, Z81584, Z11547, X85124, Z93386, L40064, AF077409, X70058, U75698, S71251,  
U93872, Z12297, U57623, Z47071, L04694, AL021889, Z92954, X6770, AA633258,  
AA133416, AA600287, T09468, AA665309, N24211, W30771, H87145, N42369, T31042,  
W02518, AA897191, T70084, AA179734, W03225, AA331636, T54480, AA197191,  
AA643516, W25677, AA133029, AA429285, AA485516, Z20993, N54094, AA469401,  
40 N36058, AA468795, AA232926, AA976627, AA968817, AA989208, T35134, N57107,  
AA876081, T35135, T35140, H39913, AA369394, AA693763, AA375648, AA057186,  
AA938966, AA560005, M62055, H68885, R12077, N29541, AA502313, AA503237,  
AA528329, AA825985, R24092, AA878673, AA521418, AA577052, AA780434, AA976558,  
R16054, AA056958, R50068, AA396161, AA547039, AA711435, AA509931, AA921025,  
45 AA675673, AA522332, AA863643, AA816116, AA553002, AA210060, AA396324,

AA261181, AA921487, AA563375, AA012742, AA394675, Z25701, D72478, AA997156, C08087, AA736078, AI011604, AA051811, C58313, C56729, C36179, AA660386.

## 5 SEQ ID NO:666

- 
- D87675, AF001549, Z85996, AC003684, AL022165, AL021155, U91323, U91318, Z84466, U14567, AF053356, AC003108, AC002314, Z82198, AE000658, AC004491, Z77249, AC002310, AC000120, AP000050, AC002550, U91321, AF001550, Z82171, AC004383, 10 AC003046, AC002350, AC002349, AC002549, Z95115, AC004656, AC004538, AC002394, Z99943, AP000044, AC000003, AF038458, AC004638, Z82244, Z84721, AD000092, X87344, AC002404, AC004253, AC004804, U47924, AC003026, Z93023, Y10196, AC003101, AC004539, AC002480, Z97054, AC004598, AL021154, AJ003147, U63721, U62293, U82668, AC002551, AL009177, Z84469, Z68279, AF045555, AC002378, Z82206, AC002400, 15 AC003037, AC002288, AC002300, AC003104, AC004088, AC002982, U91326, U62317, AC003682, U52112, AC004084, AC003695, AC004583, AC002126, U85195, AC004073, AC002128, AC003007, AC002481, AP000008, Z86064, AC004646, AC002492, AC004447, AC002302, AC004706, Z98750, Z98050, Y07848, Z84480, Z82190, AC005206, AF003626, AA582842, AA534054, AA633540, AA487071, AA745638, AA180487, AA878105, 20 AA775332, C75350, AA100431, AA984355, AA682635, AA310556, AA229904, AA252596, AA229905, T93092, AA809926, AI050699, H47413, AA376303, AA878106, AA376107, D80026, AA354019, AA309567, AA112947, AA716522, AA341699, D30826, U46318, AA015725, H47430, W39287, H91293, AA188940, AA653226, AA814389, AA228349, AA936548, H24953, W60522, AI003797, AA772906, AA228338, AA658823, AA522811, 25 AI002945, C14692, T52478, AA515631, AA643211, AA569591, AA547955, AA547970, AA454610, AA258216, AA458534, F19369, N58133, R97701, AA533534, AA112924, AA916168, AA994233, AA975736, H17731, R18870, AA535216, R22698, AA548488, AA633361, R76565, AA683130, AA600957, R08010, AA593370, AA593516, AA634252, AA605257, AA644545, H54640, AA730672, AA730646, AA234445, H51061, N74747, 30 AA287103, AA568490, AA570255, H66503, AA602233, F00886, AA176149, R78915, N66556, R22772, N47721, R56162, AI023375, C88193, C87864, AI042727, AA261001, W64166, AA516629, AA517646, AA516955, C88111, AA501262, W71517, AI042710, W64884, W51648, AA501297, AA472555, AA463060, AA108381, AA435247, AA059835, AA059837, AA518813, W62377, AA474026, AA087147, AI046782, AI006950, AA475982, 35 AA166247, AA920903, AA175641, AA470242, AA562102, AA710135, C76134, AA155213, C76357, AA537471, AA163800, AI042687, AA473310, AA467340, AA422893, AA939431, AA690147, AA117299, W97594, AA656883, AA561751, AA509771, AA734564, AA499521, AA189435, AA543732, AA989871, AA386489, AA684285, AA823826, W70369, AA286286, AA516943, AA237468, W30521, AA153747, AA451001, AA510369, AA815851, AA177723, 40 AA415875, AA763476, AA110234, AA762876, AA120680, AA596459, AI005803, AA052145, AA254179, AI006123, AA267378, AA277780, AA863851, AA500278, C78950, AA492839, AA562469, AI044039, W06387, AF064463, AA923995, AA550283, Z69971, C07198, H39389, H39328, AA924608, AA874831, AA964062, AA997498, AA585956, AI011582, T42193, H31758, AA875363, W06750, AA800963, AA943496, AA965186, AA800915, AA892677, 45 F19756, AA946370, C08940, AI044701, H39330, AA859245, H31782, AA818187, AA851082,

AA924761, H39426, AA997533, AA788202, AA850744, AA901063, H34814, H33988,  
AA926052, AA818279, H32774, AI044531, AA892034.

5 SEQ ID NO:667

AB011483, Z97340, Z81509, AC000114, Z81035, AB005236, AB005237, AC002347, U51998,  
AC004544, AC004423, AA194905, AA164603, AA286755, AA167119, AA167166,  
AA830263, AA780686, AA883108, AA570671, R07429, AA846247, R37843, W31896,  
10 AA700665, AA384214, N56664, AA662688, AA101303, AA251009, AA934904, AA639524,  
AA576142, AA173179, AA587617, AA489636, AA179823, AA355210, N66989, AA811032,  
AA747929, AA418381, AA642577, AA976976, AA639805, AA680117, C16576, AA582928,  
AA466811, AA465808, AA066612, AA058086, AA153086, AA289102, AI037727, AA542049,  
AA395238, AA800765, AI045514, AI010045, AA892549, AJ227626, AA944513, AA114344,  
15 AI010261, AA966104, D70973, D86657, AA849991, AA998805, AI008014, AA785729,  
AA698820, AI007772.

SEQ ID NO:668

20 Z95328, AC004384, Z99281, L31840, AL021497, U67488, AF016662, AJ223044, M16396,  
M16340, M19871, Z68116, M16339, M16341, AC004369, AF030371, M27300, AL021816,  
Z36064, Y00513, X03282, AC000030, X58120, Z36065, U33002, U91967, AC000118,  
U63851, D87001, X85787, D89503, AF030368, M21696, Z21487, U17903, U09239, Z83335,  
25 U09185, AE000539, U64847, AA863014, W52480, W56770, AA765427, AA814246,  
AA873647, AA770312, AA732557, AA568651, AA865009, F01265, AA749297, R37952,  
N31652, AA044338, AA153880, AA048428, AA250241, AA254286, C87516, AA203782,  
C80655, AA267861, AA267128, AI047568, AI036356, C87806, D15181, AA957150, C62926,  
AA840894, C92658, T01937, T00926, T02209, T00295, C94356, D71947, D71783, T01675,  
30 D71622, N98004, C25514, C61667.

SEQ ID NO:669

35 X97043, U04807, AC003677, AF037335, AF051882, L81669, AC004593, AL021528, Z68756,  
AA121077, AA326735, W48794, AA236101, H45963, AA459151, AA354204, AA084808,  
AA676879, AA593002, R55174, X97508, T75179, F12881, AA368125, AA151754,  
AA603238, AA452311, R53168, AA723764, T60040, U66687, AA897427, H17207, W95372,  
AA812708, H60893, W95482, AA856806, AA160710, R34891, AA317271, Z19829, W75898,  
40 AA856358, AA003370, W08075, W82868, AA690102, W11129, AA107435, AA089155,  
AA017868, AA048690, AA727479, AA461833, AA562528, AA562230, AA562930,  
AA727629, AA145018, AA672796, C80733, AA855999, AA986604, Z31226, AA000432,  
AA124754, W11318, AA061359, AA466218, AA856003, W13943, AA032724, D85585,  
AA817504, AA978764, AA978729, AA202155, C19540, AA539419, AA924434, AA858819,  
45 AA697379.

## SEQ ID NO:670

AL020992, AF068865, AE000006, L23176, D00814, D87664, X90947, AC002531, L08802,  
M35138, L06465, X87940, X13369, U49642, L23432, U08440, M89798, M35134, M35135,  
5 AC002378, M35137, D38508, M35136, Z96234, U24680, AA458937, AA889703, AA653968,  
~~W49620, AA642981, T57200, AA593002, AA725435, AA903402, AA027201, AA235819,~~  
AA084809, H61158, AA399478, AA293409, H62064, AA676879, T55953, AA027200,  
AA454941, T90533, H17823, R42888, R69560, AA184206, AA606789, W53759, AA509752,  
AA867237, AA103584, AA107134, AA681567, AA963531, N41264, AA022366, AA415130,  
10 AA786747.

## SEQ ID NO:671

15 D26549, X78479, U04354, Y13971, AF059486, AF041448, J04953, AF041449, X65371,  
Z29534, AB009484, X66975, AP000003, X62006, X60648, J03781, X65372, X93009, X60790,  
X52101, X60789, X74565, Z68104, X13871, AL008720, X13319, U31699, M97227,  
AE001101, X68039, D16513, X04412, U55045, D10444, X98992, AA297223, AA173831,  
W94379, AA767369, AA402710, N78981, AA477793, R82023, N24229, AA398270,  
20 AA287246, AA402311, R83487, R64484, AA464394, H42351, AA366630, R81856, R78362,  
AA534882, AA401797, AA430707, AA459584, AA541397, AA250858, AA452232,  
AA454901, R66518, AA404457, AA463569, H26083, W60964, AA188584, R15617, H42803,  
AA991699, AA292928, AA978201, AA991330, H26306, AA700488, AA855151, AA994947,  
W45721, AA743326, AA782612, AA743280, H62221, AA017180, AA019754, N98954,  
25 AA612690, AA994943, AA472387, AA511598, AA473866, AA462522, W54664, AA562254,  
AA762354, AA409040, AA667740, AA103223, AA543962, W80100, AA592243, AA691889,  
AA067051, AA239612, W74992, AA510839, AA880330, W98896, AA555737, AA032335,  
AA000407, W42118, W98220, W29218, AA423745, AA674212, AA624932, AA241020,  
AA472546, AA140271, AA880506, AA212842, F14654, D47825, F13580, D15888, C67840,  
30 N65841, T45717, T44358, T43447, AA391093, AA438301, R90252, R65202, AA392664,  
T43199, AA951952, R64841, T43329, L33593, AA391723, T46026, T04745, U74156,  
AA264205, R30497, AA979157, R64741, AA996847, T45716, AA540501.

## 35 SEQ ID NO:672

AP000034, AE000036, AE000046, AE000035, U35013, AC003080, AE000004, Z54140,  
M60558, AF029304, U09871, U26310, Z70691, U93196, Z75746, AB009529, Z75893,  
AL021469, AF043105, AL022153, J00332, U15617, U49830, M34482, AE000002, AC002287,  
40 AE000054, M29930, AA527268, AA007407, N28891, AA431793, AA780210, W92012,  
W74607, AA004205, N25768, C15995, AA114952, AA630321, AA854206, AA643184,  
AA216596, W45570, AI038928, AA811726, W90371, AI027706, AA001737, N30763,  
AA424428, W90372, AA603729, AA045835, W92013, C17881, AA610141, AA148861,  
W03446, AA216543, H97575, AA490320, AA535623, AA490420, W31657, W31813,  
45 W94384, N57577, W04711, AA310731, R76992, AA424324, AA486288, AA678487,  
AA011500, W68201, C15934, N73273, H49322, W02793, AA214609, AA165561, AA011499,

H10609, AA864358, N67842, AA953621, W68202, AI034146, D78892, W15581, W30934, AA903135, AA693353, H49323, AA336381, AA205308, AA648400, AA971954, H97860, H69988, AI004353, AA485269, N20849, AA804853, AA766793, AA513152, AA433927, H44141, AA206741, AA454142, AA485268, N62700, AA114829, T97120, AA299424,  
5 R81774, AA377665, AA682981, R62712, AA825778, AA007422, AA552090, AA917730, ~~AA579359, AA348162, D52988, AA489309, AA175464, AA727854, AA059823, AA200267,~~  
AA140441, AA032863, AA466843, AA611918, AA267387, AA760526, AA608178, W45747, W97332, AA096662, AA086866, AA896228, AI019235, AA789939, AA647949, AA561771, AA666669, AA590556, AA822900, AA560406, AA571981, AA097088, AA396402,  
10 AA254405, C76660, C76658, AA079914, AA822893, AI035391, AI006731, AA266201, C85948, AA919731, AA240590, AA791055, AA666667, AA726236, AA799210, AA433607, AA645630, AA762128, AA166173, AA268016, AA498824, AA881031, AA726992, W07991, AA623299, AA874625, AA200448, AA444663, AA183321, AA863792, AA472424, AA960524, AA560556, AA396152, AA116991, AA790566, D18314, AA894335, X89996,  
15 AA849531, AA848917, AA957315, H33866, AI009528, Z81222, H32405, X93228, C06826, T43652, AA801268, C23790, C32716, AA676087, AA141062, AA605573, Z18210, D39911, D22377.

## 20 SEQ ID NO:673

X58153, Z50071, AC003700, AC004245, M30638, AL021880, M30639, M54967, D14855, Z97200, X67013, M30632, M30636, M30634, Z68760, M30635, Z71264, M30631, M30637, D14543, S61093, H73329, AA134490, AA159064, R96540, AA953186, H69175, R96494,  
25 H73968, H69176, N55662, R58761, AA303255, AA116035, H68297, N99809, AA007687, N74723, R07190, N90964, AA680414, N72663, AA347299, AI032560, AI040579, AI040370, AA669506, AA702663, AA989283, AA699880, AI052331, H50729, AA886747, AA677544, R98098, AA680079, N64446, N39020, N72788, AA701900, AA705447, AI052220, R10244, R16577, N53150, W01627, W25922, AA700016, N63669, AI032838, AI051607, T69778,  
30 H73025, N52226, H79535, T64986, W86506, AA776291, AI021907, AA679301, AI022335, T67130, H66256, H54609, H05371, N57770, R06843, AI051936, N53062, N64734, W86031, AI032477, R89438, H48262, H57697, H69675, H72606, W88659, AA011440, AA034177, AA694393, T97819, R86883, R97887, AI033339, AA704799, AA679426, N68756, Z43491, Z41321, AI022708, W04439, AA704457, AA011414, N57791, R07710, W45117, AA769855,  
35 AA704816, R25435, AA104708, W29913, AA959332, AA647687, AA472746, AA462737, AA711760, AI046986, W75714, AA172863, AA511748, AA759397, AA874539, AA619743, AA183523, AA427065, AA647530, F15056, C65308, C65649, D36342, AA875582, C22479, AA394738, AA858604, Z34567, C22600.

40

## SEQ ID NO:674

AC002294, AC002402, AL031005, U38766, U11280, AF068865, X54108, AA279210, AA581835, N52991, N54313, AI024647, AA135938, AA398451, AA595755, AA157993,  
45 AA218616, AA805397, AA450276, AA947182, AA630611, AA158040, AA779113, AA134491, AA134938, AA779904, AA626627, H68298, R06239, AA534688, AA861636,

AA809443, AI003531, AA116036, T51634, AA936183, AA292987, AA678766, AA807738, AA976920, AA911039, AA279247, AA136254, T51792, AA809459, R29286, N89268, R41286, AA896634, AA607867, W91279, AA163071, AI036451, AA008398, N98055.

5

SEQ ID NO:689:

---

M11560

10 SEQ ID NO:691:

U60276

SEQ ID NO:692:

15

L19605

SEQ ID NO:694:

20 U55766

SEQ ID NO:696:

AF070717, U14571, Z73429, AC004785, M82819, AA773566, AA098877, AA279517,  
25 AA886992, AA629913, N69507, AA279518, AA132750, C15093, W48755, AA630713,  
W92961, C15141, AA669834, R76765, W92962, AA598682, AA454107, AA224364, W65387,  
AA098876, AA863200, AA452524, W61291, W72931, W94226, AA992646, W48754,  
AA580701, AA219402, AA364030, AA828979, AA320709, AA197313, H22885, AA633244,  
AA470899, AA374705, AA311692, AA903014, AA315870, AA224225, AA809964, F00274,  
30 AA679478, AA093538, AA129124, AA342846, AA302541, AA705999, AA501614,  
AA206468, AA720732, R92404, AA628627, H57826, AA357307, AA663966, T48872,  
AA526193, AA130501, H63193, AI049996, AA631497, AA632479, AA593471, H74314,  
T78484, AI016704, AA515046, AA190895, AA983692, H05073, N64587, AA730581,  
W23546, AA077776, AA720702, AA655005, F17700, AA878149, AA972238, AA491814,  
35 AA635442, AA654761, R92629, N54902, AI049634, AA973803, AA493170, AA714956,  
AA838161, AA662974, AA068993, AA830594, AA601405, AA558404, AA553448,  
AA904211, AA493708, AA823826, C88111, W64166, AA501262, W61986, AA516955,  
AA501297, AA516629, AA517646, AA474026, AA517461, AA415875, C87438, W64884,  
W51648, AA863851, AA501128, W62377, AA501217, AA575771, AA815883, AA855776,  
40 C87922, W71517, AA068629, AA414457, C77110, AA547030, C78926, C86532, C79035,  
C79044.

SEQ ID NO:697:

45 Z86000, AC002316, AP000030, AC000026, AC002059, L48038, AC002094, AC003086,  
AC002476, AC003982, AL008706, AC004790, AC002070, AF001549, AJ003147, AC002312,



Z82190, AC002565, Z99943, AC002400, AC003037, AC004703, Z98941, AC004257,  
AP000045, AC002431, AC004132, AC004417, AC003108, AF031078, AF030876, AL020997,  
AB001523, AC002477, AP000036, U91319, AF029308, Z97054, AC002288, Z93096, Z93023,  
U91323, AC002563, U91321, AC002350, AC004386, U07563, AC000379, AC002418,  
5 AC001231, M89651, AC002492, AC003047, AC004098, AC004000, AC002073, AC002041,  
~~AL009181, AC004448, AC002081, AC004552, AC002558, U91326, AC003007, AC000003,~~  
U91318, L44140, U91328, AC004496, AP000031, D87675, AC002117, AL008726, AL008715,  
AC004753, Z83822, AC003101, AL009179, AC004217, U78027, AL022165, AC002306,  
AC004125, AC004263, AC004650, AC002984, AC002314, U95739, Z97183, AC002991,  
10 AC002425, AC002126, AF001548, AC005261, AF001552, K03021, AP000011, Z82195,  
L77569, AC000072, AA708194, AA210943, H67234, AA249143, AA564343, AA460896,  
AA703887, N27422, AA524863, AA652852, AA070330, F03189, AA563829, AA708240,  
H81553, AA027351, H66391, AA074026, AA492015, AA016279, AA017169, AA059247,  
AA226084, H85032, H86546, AA907782, C75526, AA904282, C75403, AA572983,  
15 AA584845, AA581895, AA631447, AA558814, AA570132, AA479877, AA443587, D29467,  
AA601425, H70285, W03944, AA573000, AA504776, AA805552, AA019548, AA076936,  
T74382, AA669741, R63301, AA911579, AA100000, AA405922, R96104, AA405798,  
AI039754, AA936552, H73438, H72645, AA513484, AA613626, N30650, AA729755,  
AA015649, N30876, AA629963, AA701047, AA719745, AA995809, N25303, AA708108,  
20 AA703675, W31678, F00320, AA132912, AA501554, AA297441, AA719726, AA572971,  
AA513920, AA513231, AA527816, AA527841, AA481786, H62779, AA502683, AA365605,  
AA300061, AA525112, H03240, AA693366, AA904137, N32030, AA947763, AA740571,  
AA741403, AA503407, F11809, AA552955, T52478, T47739, W62377, AA986140,  
AA415875, W71684, AA516629, W51648, AA516955, C87864, AA517646, R75183,  
25 AA501217, AA867834, AA863851, W71592, C88193, AA022287, AA855382, AA265984,  
AA014476, C88111, W64166, AA261001, C81458, AA501297, W13408, AA879521,  
AA823826, AA762317, AA863783, AA174375, AA466109, AA472372, AI037679, C78321,  
AA856422, AA501262, AA561605, AA682115, W15812, AA562507, C86532, AA267728,  
AA516885, C78142, C79245, AA791588, AA815851, AA210215, AA462028, AA510149,  
30 AA517461, AA792334, AA793827, W62885, AA546569, C80153, AA139062, C87922,  
AA501128, AA711449, AA596816, AA023668, AA691333, AA427026, C78137, AA881322,  
AI019259, AI042727, Z69957, H39330, AI029425, AA550283, H39426, H39321, Z30905,  
H39389, AA923995, AA893827, AA550568, H39351, AA891239, H39328, AI010256,  
AA892653.

35

SEQ ID NO:698:

X76301, Z25469, L27439, X90848, Y09136, U70842, S77125, Z82265, U38906, AC004736,  
Z35597, Z72662, Z99496, Z73986, L13467, X99960, L22013, U73815, Z79603, AA167732,  
40 AI028439, W23466, AI025463, AA845457, AA446584, AA043787, N80102, AA286851,  
W15520, AA203214, AA136335, AA564286, W27182, AA046141, AA055206, AA136421,  
H01905, H27226, T32454, R52017, N64668, H68649, AI022543, Z43295, AA307987,  
AI033772, AA286852, AA312142, AA043659, AA449604, AA446711, D79463, AA046315,  
AA860727, D79474, D62331, D79449, T31687, D79486, AA582111, AA449345, D62277,  
45 D62267, AA055207, D79511, H01906, T30278, N43872, T30197, AI022561, AA034316,  
D62327, AA772965, R46766, D79478, AA676250, H28580, H24499, H83920, AA953574,

AA167827, D62359, D62179, R23692, D62237, D79476, T30198, D62209, Z39370,  
AA639113, AA654964, R52018, T10740, W31603, W76194, AA897292, R77246, R57121,  
R26648, R57863, AA969689, D45818, AA574016, T82850, R11787, H21441, AA809133,  
R13326, R20026, H47489, W92053, W92070, H50376, R28033, AA769318, AA768972,  
5 AA804195, AA990143, AA217311, D77641, AA175735, AA475195, AA197681, AA146435,  
AA790755, W64796, AA914314, AA116274, H34812, C46456, D48721, H91524, C48250,  
C35709.

SEQ ID NO:699:

10 U66300, AF039698, AF045432, U48696, S78798, U39066, AF033565, U65376, U52868,  
Z97178, U44386, AF027174, U37573, Z49980, AF033096, S83098, AF033097, AJ001103,  
U34048, Z86001, U41811, G29058, G29060, X99051, U95741, U48697, X99055, AC004082,  
U67560, U67566, AB011131, AL010216, Z81505, X67633, X57314, AF040658, X71612,  
15 Z46787, AF037228, AF037229, Z98549, AC003683, Y14079, Z97183, Z99109, Z81101,  
AC004429, AC002432, L05186, AF017104, U92821, AC004740, AC004774, U73642, U67608,  
U64845, Z83644, X89633, D11078, Z83230, Z75180, AA628768, AA877858, AA639879,  
AA928423, AA534765, AA948368, AA046419, AA476488, AA282062, AA041386, N39225,  
AA534439, AA970486, T65110, Z78323, R60033, T26967, F11018, H72635, T30561, R60095,  
20 Z39551, AA328209, F02192, AI002843, AA828237, AA191158, AA551155, AA324937,  
AA102729, Z44175, AA777928, AA041426, F04498, AA907747, AA328003, T65177,  
AI031820, T34427, AA247964, N84830, AA096046, N83168, H58760, N87989, AA089553,  
N55684, AA095641, N84855, N86694, N84048, N88782, AA093224, N88601, AA471338,  
N83991, N84718, AA247827, AA096066, N83992, N83993, N84712, N89520, N55698,  
25 N84723, N88496, N84828, AA093861, N88518, N84016, N84721, N56118, AA089554,  
AA094237, N84561, N55641, AA095359, N55655, N84602, N84733, AA215911, N55681,  
N84735, N84764, AA215908, N84874, N55658, N84720, N84734, N84736, N84722, N85900,  
AA249064, N84873, N87317, AA248551, N55697, N85031, N84563, N85930, AA122510,  
C76291, AA462169, AA542055, C79890, AA756608, C76124, AA207595, C76125,  
30 AA461732, AA120499, AA170909, AA960229, AA871528, AA415746, AA929682,  
AA896234, AA896879, AA269666, AA285591, AA674497, W77478, W83646, AA067612,  
AA921455, AA208274, AA511095, AA139335, AA140492, AA799531, AI009181, AF041408,  
AA933116, AA933363, C84183, C93176, H36589, C89903, T21289, AA509249, H76948,  
AA824745, AA550122, H07815, H07829, W51717, C28309, AA550098, Z35390, AA856224,  
35 AA933118, AA752407, AA962878, AA433419, AA819970, D37699, AA394851, D67990,  
AA957045.

SEQ ID NO:700:

40 AF071059, U00951, U00960, U07155, U07156, X84692, X98265, X98264, AC004226,  
U40411, M74208, U10324, U40944, X75560, U52953, AA044715, AA115936, N32662,  
T55974, AA133605, W27456, AA361607, AA065257, AA382890, AA005068, AA313921,  
W26569, AA344680, AA558006, AA007334, AA371086, AA343153, AA460042, AA045654,  
AA036884, AA804323, AA705224, AI002996, T50389, T50520, Z28526, T32573, R99233,  
45 AA007333, AA370178, AA370142, N92665, N58504, AA807087, AA884767, AA233365,  
AA282826, AA601060, AA969488, T35242, AA807029, AA182543, AA181535, AA232979,

AA092778, AA649579, T55495, AA322086, AA348254, R34591, AI033827, AI033853,  
H88859, AA160255, AA329975, AA487643, R31743, AA475064, AA146372, AA871140,  
AA253642, AA003881, AA796077, AA062333, AA146239, AA087712, W41927, AA920431,  
AA555969, AI050529, H33770, H34706, D67255, H36826, AA900197, C61845, AI029124,  
5 AA882920.

---

SEQ ID NO:701:

M29204

10

SEQ ID NO:702:

Y09136, X90848, X76301, U38906, L22013, Z79603, Z81546, X99960, Z72662, W23466,  
N80102, AA286851, H01905, R52017, AA312142, H68649, AA043659, Z43295, AA449604,  
15 AA446711, AA203214, AA307987, W27182, T31687, AA136421, AA055206, T30197,  
AA582111, T30278, AA167827, R23692, AA639113, AA654964, N43872, T10740, H27226,  
R57121, W76194, W31603, R57863, AI025463, AI028439, AA046141, AA845457, AA446584,  
AA167732, H24499, AA043787, AA564286, W15520, D45818, AA574016, AA990143,  
D77641, AA154680, W64796, AA790755, AA914314, AA197681, AA265989, AA116274,  
20 H34812, C35709, D48721.

SEQ ID NO:703:

D87666, AF064864, Z76735, AF000982, AC002340, AF042091, Z72501, X53511, U12386,  
25 M88113, Z36949, AC004359, D26535, Z35776, U40270, Z93785, Z50875, X03836, Z82266,  
AC001230, X68577, Z35775, AF001541, AA057400, AA047729, W87409, AA135796,  
R15559, N44337, AA702504, AA063629, AA742976, W32615, R85128, AA551773,  
AA447039, T06399, AA490913, AA847112, T07082, W96278, AA248197, AA229639,  
AA682900, AI005156, AA410455, AA091945, AA569443, AA406439, AA578709, AA489032,  
30 AA747664, AA769234, AA324390, H82736, C00609, AA282819, AA935217, AA730269,  
AA618569, AA778231, AA285040, H39480, AA628054, AA837128, AI005305, AA639286,  
AA987311, AA903597, AA902853, AA829062, AA610424, AA285126, N66825, AA903377,  
AA972586, AA632521, AA916359, AA578123, AA988499, AA639300, AA525374,  
AA631485, AA551141, AA973657, AA631901, AA903366, AA847109, AA099080,  
35 AA678350, AA604839, H53720, AA534137, AA632574, AA578021, AA640251, AA491100,  
AA602054, AA094372, AA026758, AA557760, AA935064, AA658510, AA707898,  
AA652476, AA886007, AA578255, AA468230, T69729, AA502198, AA837609, AA748046,  
W80468, AA470337, AA780352, AA665155, AA935201, AA564552, AA135797, AI032579,  
AA973283, T07200, AA733538, AA710939, AA138470, AA432980, AA210614, AA413542,  
40 AA413526, AA563275, AA656898, AA116750, AA498634, AA986621, AA174767,  
AA919930, AA895374, AA896038, AA733538, AA710939, AA138470, AA432980,  
AA210614, AA413542, AA413526, AA563275, AA656898, AA116750, AA498634,  
AA986621, AA174767, AA919930, AA895374, AA896038.

45

SEQ ID NO:704:

D82348

SEQ ID NO:705:

5

Z97178, AF045432, U48696, S78798, U66300, AF039698, U39066, AF033565, U65376, U52868, U44386, U41811, AF027174, Z95703, AC002528, Z49980, U37573, L35736, L19494, L13454, Z25420, L49403, U66476, H10716, N83168, N83993, N84048, N84712, N86694, AA247964, H58760, AA093224, N84855, N87989, AA096066, N89520, N56555, N56118, 10 AA959396, AA867304, AA839505, AA575337, AA874176, AA168830, AA546447, AF041408, AA735772, AA695603, N65781, AA923869, AA943734, AA532298, AA945166, Z48405, AA926333, AA933285, AA800020, AA901275, C45122, AA957144, AA850173, AA996777

15 SEQ ID NO:706

AL022394, AC004552, Z97206, Z81144, AD000091, AC004744, M86524, AC003075, AC004111, AC003099, Z95126, U96629, AC000120, Z93403, U73465, AC002519, Z95326, Z82216, AC005164, AC002066, AC004259, AC002452, AC000357, AC004536, AC002379, 20 AC004083, AL021330, AC004008, U80017, AC002538, Z77723, AC002539, AC005176, Z68326, AC004385, Z68746, AC004254, AC000049, AC004384, AC005214, Z83827, U69729, M68887, Z82205, AC005166, AC002468, Z70273, AC005161, Z95437, U71148, AC002056, Z81008, AC002426, Z70232, AL021307, AC004780, D87000, Z84470, Z68694, AP000016, AC004800, AC000365, AC003953, Z82200, AL008713, Z98754, Z84477, Z70224, AC002067, 25 X63773, Z92547, U51244, AL009173, AC002402, AC004613, AC001608, AC002486, AC002478, N69317, AA992185, AA779937, AA826143, AA548061, F17026, AA459350, AA551109, AA299156, AA748658, AA904946, AA446110, AA489231, T06365, AA962220, AA347740, R11427, AA344409, AA767353, N84190, AA601392, AI003789, AI028382, AA890652, AA836010, AI051341, F07696, AA280689, AA744376, AA765833, AA811111, 30 AA468571, AA493584, N26697, AA252846, AA493971, AA132716, T29138, AA069204, AI024598, AA081919, AA340015, R78997, T78394, AA902828, AA722562, AA766076, AA679855, AA852059, AA852074, N43965, AI027714, R84318, C17730, AA584498, AI032071, AA431897, AA777615, N27818, Z36956, AA129986, T06400, AA488997, AA655147, AA915228, AA986225, AA189992, AA760375, AA153172, AA760071, T41926, 35 C31566, D34395, C54206, AA057906, C84769, D32502, C07940, C93297, C55104, AA943087, AA605420, D34506, C08204, AA257945, H35315, AA269210

SEQ ID NOS:707, 709, 711 and 712:

40

U50839, AJ006486, X96701, AC000075, U23946, Y14428, U55853, U73690, D87469, U66348, U15972, U49056, X15750, U73123, X83976, M59490, Z46757, L11710, U06631, D43920, U26259, L04656, X15209, AF020312, U88713, U88712, S80994, AA890595, AA194477, AI040915, AA808896, AA194391, AA630283, AA604807, AA151139, AA743625, 45 AA576448, AA594332, AA554043, AA151140, AI049688, W95685, AI041568, AA492300, H29466, H29465, H50770, AA081057, R42909, AA083642, H91241, H50360, T52344,

N26936, N66716, H68058, AA928951, AA280393, AA934109, AA505844, AA355104, AA504565, D45524, R17569, F04483, T23042, AA247255, H61892, AI003120, D60896, AA442117, AI041522, AA301168, H92604, AA480590, AA989528, F08851, AA612865, F08256, AA969568, T52417, AA632042, AI038369, AA079461, AA367105, AA322594,  
5 AA902644, AA814598, AA372751, AA573311, U33921, H92264, W95714, AA679052, AA079462, H50677, AA825284, N80152, AA436772, AA325582, AA737681, AA770224, AA812204, R52021, R87930, R50149, AA298850, AA569993, H26500, H98164, N22864, AA281862, H72485, W28236, W38896, W76200, AA397991, AA326213, AA406569, AA810203, N26696, AA607276, AF064939, AA549397, AA718492, W11974, AA790829,  
10 AA718494, AA241183, AA086694, AA914805, AA823956, AA209543, AA268319, AA794261, AI042691, C80539, AA675676, AA794590, AA930627, AA795177, AA863563, AA607084, AA794703, AA960471, C85885, AA260352, AI044485, AA851524, AA851651, AA979509, H31962, AI008699, AA539524, D48514, AA440856, C74456.

## SEQ ID NO:544

U79271, AC004636, AB006709, AF049105, Z28051, AF022655, Z28050, Z47074, AC004755, X75781, X61157, S48813, AF009623, D89245, M74822, AC004257, M98498, L23127, X53421, M87854, Y16899, D84549, U90567, M80776, M34073, U08438, U88309, S81843, U70850, AA886109, N51485, AA843811, AA102109, AA879456, AA829894, W72147, AA029201, AI033069, AA161465, AA812519, N64528, N51277, H99906, R71679, AA744290, AA099913, AI038590, AA083859, AA883684, R39448, R36854, H98684, R07471, AA910762, AA083954, AA346369, R54092, H09074, N21975, D59844, H11525, AA971254, W77907, AA878973, AA715235, AA328928, W29097, AA860455, AA026096, AA026516, T26899, N71178, AA372290, AI038890, AA252245, W05501, AI039908, AA938631, AI016407, N70619, AA242923, AA973566, AA985290, AA995707, D81647, AA452630, N27253, AA682624, A252941, AA780678, AA280664, T09391, AA742364, AA907234, AA161236, AA155014, AA269966, AA089195, AA690806, AA466212, AA423476, AA591111, AA153891, AA967806, W65797, AA734052, W53738, AA175557, AA048480, AA027381, W66734, AA968020, AA230895, AA879531, AI019772, W18052, F20017, AA433457, AA550452, AI044911, AA786697,

## SEQ ID NO:545

AB011172, AB006626, AC002124, AC002410, AC002088, AD001502, U58776, M92914, Z21721, D25543, Z46598, AL023874, AB004317, L77566, U53786, AF004877, X51780, U31342, X54296, D85375, AC003032, M57425, AC004471, AF039241, AF039241, AA617796, AA488201, AA515666, W51949, AA194873, AA622411, AA927444, AA927444 om70d12.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 731 0.0 W52500, W52500 zd13d02.r1 Soares fetal heart NbHH19W Homo sap... 728 0.0 R64670, R64670 yi22c09.s1 Homo sapiens cDNA clone 139984 3'. 706 0.0 AA057030, AA057030 zk78b03.r1 Soares pregnant uterus NbHPU Ho... 698 0.0 AA496417, AA496417 zv37b03.r1 Soares ovary tumor NbHOT Homo s... 686 0.0 AA116072, AA116072 zm79e11.r1 Stratagene neuroepithelium (#93... 678 0.0 AA042995, AA042995 zk56b07.r1 Soares pregnant uterus NbHPU Ho... 668 0.0 H69274, H69274 EST00070 Homo sapiens cDNA clone HE6WCR117 5'. 658 0.0 AA047371, AA047371 zk78b03.s1 Soares pregnant uterus NbHPU Ho... 658 0.0 R64669, R64669 yi22c09.r1 Homo sapiens cDNA clone 139984 5'. 654 0.0 AA116073, AA116073 zm79e11.s1 Stratagene neuroepithelium (#93... 634 e-180 AA160894, AA160894 zo79c05.s1 Stratagene pancreas (#937208) H... 632 e-179 AA425945, AA425945 zv84a12.s1 Soares total fetus Nb2HF8 9w Ho... 595 e-168 AA436368, AA436368 zv32f05.s1 Soares ovary tumor NbHOT Homo s... 585 e-165 AA975130, AA975130 on06f01.s1 NCI\_CGAP\_Lei2 Homo sapiens cDNA... 579 e-163 AA885226, AA885226 am34e06.s1 Soares NFL T GBC S1 Homo sapien... 559 e-157 AA912472, AA912472 ol96e03.s1 NCI\_CGAP\_PNS1 Homo sapiens cDNA... 555 e-156 AA320935, AA320935 EST23388 Adipose tissue, white II Homo sap... 553 e-155

AA042872, AA042872 zk56b07.s1 Soares pregnant uterus NbHPU Ho... 543 e-152  
 T08932, T08932 EST06824 Homo sapiens cDNA clone HIBBM46 5' end. 537 e-150  
 AA488258, AA488258 ad08f07.r1 Soares NbHFB Homo sapiens cDNA ... 533 e-149  
 T19350, T19350 h03012t Testis 1 Homo sapiens cDNA clone h0301... 496 e-138  
 H87681, H87681 yw15e04.r1 Homo sapiens cDNA clone 252318 5'. 490 e-136  


---

 H81522, H81522 yu61h08.r1 Homo sapiens cDNA clone 230655 5'. 466 e-129  
 T49620, T49620 ya77g03.s1 Homo sapiens cDNA clone 67732 3'. 452 e-125  
 R14363, R14363 yf80d10.r1 Homo sapiens cDNA clone 28995 5' si... 446 e-123  
 AA211476, AA211476 zp75h11.s1 Stratagene HeLa cell s3 937216 ... 430 e-118  
 N46636, N46636 yy48a09.r1 Homo sapiens cDNA clone 276760 5'. 424 e-116  
 Z17358, HSDHII065 H. sapiens partial cDNA sequence; clone HL... 416 e-114  
 R40737, R40737 yf80d10.s1 Homo sapiens cDNA clone 28995 3'. 400 e-109  
 AA410278, AA410278 zv32f05.r1 Soares ovary tumor NbHOT Homo s... 383 e-104  
 AA496574, AA496574 zv37b03.s1 Soares ovary tumor NbHOT Homo s... 375 e-101  
 N34907, N34907 yy48a09.s1 Homo sapiens cDNA clone 276760 3'. 371 e-100  
 T49619, T49619 ya77g03.r1 Homo sapiens cDNA clone 67732 5'. 355 e-95  
 AA301480, AA301480 EST14551 Thymus III Homo sapiens cDNA 5' end 341 e-91  
 R31593, R31593 yh76f03.s1 Homo sapiens cDNA clone 135677 3'. 317 e-84  
 AA984591, AA984591 am89d10.s1 Stratagene schizo brain S11 Hom... 313 e-83  
 AA338831, AA338831 EST43831 Fetal brain I Homo sapiens cDNA 5... 238 e-60  
 T07305, T07305 EST05194 Homo sapiens cDNA clone HFBEG86. 230 e-58  
 AA159942, AA159942 zo79c05.r1 Stratagene pancreas (#937208) H... 204 e-50  
 R57355, R57355 F2878 Fetal heart Homo sapiens cDNA clone F287... 196 e-48  
 AA729237, AA729237 nx35c08.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 192 e-46  
 AA877709, AA877709 nr09g11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 172 e-41  
 AA969195, AA969195 op51c03.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 107 e-21  
 AA327432, AA327432 EST30768 Colon I Homo sapiens cDNA 5' end 80 e-12  
 AA854147, AA854147 aj71f01.s1 Soares parathyroid tumor NbHPA ... 74 e-11  
 AA983156, AA983156 oq51g09.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 66 e-08  
 H09529, H09529 yl95h10.s1 Homo sapiens cDNA clone 46129 3'. 66 e-08  
 AA286791, AA286791 zs54h07.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 66 e-08  
 W04418, W04418 za43c06.r1 Soares fetal liver spleen 1NFLS Hom... 58 e-06  
 AA101045, AA101045 zm27e12.r1 Stratagene pancreas (#937208) H... 56 e-05  
 AA064706, AA064706 zm13f07.r1 Stratagene pancreas (#937208) H... 42 0.22  
 AA810035, AA810035 od11f12.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.86  
 T41169, T41169 ya31g10.s3 Homo sapiens cDNA clone 62274 3' co... 40 0.86  
 AA070108, AA070108 zm69d06.s1 Stratagene neuroepithelium (#93... 40 0.86  
 AA706183, AA706183 ag93e01.s1 Stratagene hNT neuron (#937233)... 40 0.86  
 AA393069, AA393069 zt69e09.r1 Soares testis NHT Homo sapiens ... 40 0.86  
 AA371600, AA371600 EST83650 Pituitary gland, subtracted (prol... 40 0.86  
 AA977820, AA977820 oq78a09.s1 NCI\_CGAP\_Kid6 Homo sapiens cDNA... 38 3.4  
 AA584760, AA584760 no04c06.s1 NCI\_CGAP\_Phe1 Homo sapiens cDNA... 38 3.4  
 AA584615, AA584615 no08g12.s1 NCI\_CGAP\_Phe1 Homo sapiens cDNA... 38 3.4  
 AA229827, AA229827 nc48c04.r1 NCI\_CGAP\_Pr3 Homo sapiens cDNA ... 38 3.4  
 W21398, W21398 zb50a11.r1 Soares fetal lung NbHL19W Homo sapi... 38 3.4

AA136933, AA136933 zn97f07.s1 Stratagene fetal retina 937202 ... 38 3.4

---

AA869501, AA869501 vq08g11.r1 Barstead stromal cell line MPLR... 833 0.0  
 AA221749, AA221749 my28g01.r1 Barstead mouse pooled organs MP... 789 0.0  
 AA271363, AA271363 va71d08.r1 Soares mouse 3NME12 5 Mus muscu... 781 0.0  
 AA544727, AA544727 vk35d01.r1 Soares mouse mammary gland NbMM... 773 0.0  
 W84968, W84968 mf42e02.r1 Soares mouse embryo NbME13.5 14.5 M... 640 0.0  
 AA153324, AA153324 ms61e11.r1 Stratagene mouse embryonic carc... 617 e-175  
 AA673899, AA673899 vo86g07.r1 Barstead mouse irradiated colon... 583 e-164  
 AA797488, AA797488 vw28a05.r1 Soares mouse mammary gland NbMM... 519 c-145  
 W71831, W71831 me45b06.r1 Soares mouse embryo NbME13.5 14.5 M... 472 e-131  
 AA213358, AA213358 mu74e04.r1 Stratagene mouse embryonic carc... 444 e-123  
 W75918, W75918 me82f05.r1 Soares mouse embryo NbME13.5 14.5 M... 444 e-123  
 AA038141, AA038141 mi81e05.r1 Soares mouse p3NMF19.5 Mus musc... 359 3e-97  
 AA038288, AA038288 mi83b04.r1 Soares mouse p3NMF19.5 Mus musc... 323 1e-86  
 AA017742, AA017742 mh40c03.r1 Soares mouse placenta 4NbMP13.5... 297 8e-79  
 AA771297, AA771297 vt17g04.r1 Barstead mouse myotubes MPLRB5 ... 297 8e-79  
 AA105228, AA105228 mp45b11.r1 Barstead MPLRB1 Mus musculus cD... 295 3e-78  
 AA068340, AA068340 mm53f01.r1 Stratagene mouse embryonic carc... 293 1e-77  
 AA612347, AA612347 vo05c08.r1 Stratagene mouse skin (#937313)... 281 5e-74  
 AA038300, AA038300 mi83d04.r1 Soares mouse p3NMF19.5 Mus musc... 270 2e-70  
 AA500952, AA500952 vg01h04.r1 Soares mouse NbMH Mus musculus ... 252 4e-65  
 W08368, W08368 mb41f07.r1 Soares mouse p3NMF19.5 Mus musculus... 212 4e-53  
 AA052280, AA052280 ma82e12.r1 Soares mouse p3NMF19.5 Mus musc... 123 3e-26  
 AA064466, AA064466 ml49c05.r1 Stratagene mouse testis (#93730... 107 2e-21  
 AA271566, AA271566 vb74b09.r1 Soares mouse 3NME12 5 Mus muscu... 60 3e-07  
 C86222, C86222 Mus musculus fertilized egg cDNA 3'-end seque... 42 0.078  
 W83632, W83632 mf31a04.r1 Soares mouse embryo NbME13.5 14.5 M... 42 0.078  
 AA423627, AA423627 ve80f01.r1 Soares mouse mammary gland NbMM... 42 0.078  
 AA036586, AA036586 mi41h08.r1 Soares mouse embryo NbME13.5 14... 42 0.078  
 AA207496, AA207496 mv78g02.r1 GuayWoodford Beier mouse kidney... 42 0.078  
 AA120433, AA120433 mp82h11.r1 Soares 2NbMT Mus musculus cDNA ... 42 0.078  
 W08185, W08185 mb42h02.r1 Soares mouse p3NMF19.5 Mus musculus... 38 1.2  
 AA065563, AA065563 ml71b06.r1 Stratagene mouse kidney (#93731... 38 1.2  
 AA288756, AA288756 mr46h07.r1 Life Tech mouse embryo 15 5dpc ... 38 1.2  
 AA119334, AA119334 mp80e10.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.2  
 AA163051, AA163051 ms24a10.r1 Stratagene mouse skin (#937313)... 38 1.2  
 N28074, N28074 MDB1392R Mouse brain, Stratagene Mus musculus ... 38 1.2  
 AA288757, AA288757 mr46h08.r1 Life Tech mouse embryo 15 5dpc ... 38 1.2  
 AA122857, AA122857 mq06a02.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.2  
 AA617519, AA617519 vj77d05.r1 Knowles Solter mouse blastocyst... 38 1.2



W89420, W89420 mf80b03.r1 Soares mouse embryo NbME13.5 14.5 M... 38 1.2  
 AI047837, AI047837 ud64c11.x1 Sugano mouse liver mlia Mus mus... 38 1.2  
 AA840310, AA840310 vw91a10.r1 Stratagene mouse skin (#937313)... 36 4.8  
 AA986428, AA986428 ue13b04.x1 Sugano mouse embryo mewa Mus mu... 36 4.8  
 W47677, W47677 mc89g07.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8  


---

 AA057996, AA057996 mj56c10.r1 Soares mouse embryo NbME13.5 14... 36 4.8  
 AA183858, AA183858 mo95h01.r1 Stratagene mouse testis (#93730... 36 4.8  
 AA212232, AA212232 mu43e08.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8  
 W41067, W41067 mc39a06.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.8  
 AA967594, AA967594 uh01d06.r1 Soares mouse hypothalamus NMHy ... 36 4.8  
 AA414093, AA414093 vc64c07.s1 Knowles Solter mouse 2 cell Mus... 36 4.8  
 AA123833, AA123833 mp93c03.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8  
 AA432920, AA432920 vd91b11.r1 Soares mouse NbMH Mus musculus ... 36 4.8  
 AA874496, AA874496 vx03a08.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8  
 AA000433, AA000433 me76e09.r1 Soares mouse embryo NbME13.5 14... 36 4.8  
 AA023983, AA023983 mh94a07.r1 Soares mouse placenta 4NbMP13.5... 36 4.8  
 AA013726, AA013726 mh12c09.r1 Soares mouse placenta 4NbMP13.5... 36 4.8  
 AA274648, AA274648 vb08c01.r1 Soares mouse NML Mus musculus c... 36 4.8  
 AA140347, AA140347 mq89g06.r1 Stratagene mouse heart (#937316... 36 4.8  
 AA499377, AA499377 vi89c07.r1 Stratagene mouse heart (#937316... 36 4.8  
 C88747, C88747 Mus musculus early blastocyst cDNA, clone 01B... 36 4.8  
 AA726125, AA726125 vu88c06.r1 Stratagene mouse skin (#937313)... 36 4.8  
 AA760311, AA760311 vv71c12.r1 Stratagene mouse skin (#937313)... 36 4.8  
 AA763007, AA763007 vw60b05.r1 Soares mouse mammary gland NMLM... 36 4.8  
 AA929878, AA929878 vz44d03.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8  
 W59064, W59064 md67e10.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8  
 AA103519, AA103519 mo24b12.r1 Life Tech mouse embryo 13 5dpc ... 36 4.8  
 AA222310, AA222310 my14d08.r1 Barstead mouse heart MPLRB3 Mus... 36 4.8  
 W83557, W83557 mf32d02.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8  
 AA168631, AA168631 ms33c05.r1 Stratagene mouse skin (#937313)... 36 4.8  
 AA960143, AA960143 vw60b05.s1 Soares mouse mammary gland NMLM... 36 4.8  
 W34557, W34557 mc58a05.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8  
 W98818, W98818 mf94e06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8  
 AA008527, AA008527 mg85h01.r1 Soares mouse embryo NbME13.5 14... 36 4.8  
 AA008734, AA008734 mg86h03.r1 Soares mouse embryo NbME13.5 14... 36 4.8  
 AA510568, AA510568 vg33a10.r1 Soares mouse mammary gland NbMM... 36 4.8  
 AA672524, AA672524 vo59e11.r1 Soares mouse mammary gland NbMM... 36 4.8  
 AA052773, AA052773 mf24h01.r1 Soares mouse embryo NbME13.5 14... 36 4.8  
 AA096626, AA096626 mo09h06.r1 Life Tech mouse embryo 10 5dpc ... 36 4.8  
 AA124880, AA124880 mp73e06.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8  
 AA198005, AA198005 mv12b09.r1 GuayWoodford Beier mouse kidney... 36 4.8  
 AA624213, AA624213 vm98h06.r1 Knowles Solter mouse blastocyst... 36 4.8  
 AA521863, AA521863 vi08b01.r1 Barstead mouse myotubes MPLRB5 ... 36 4.8  
 AA692113, AA692113 vt19d03.r1 Barstead mouse myotubes MPLRB5 ... 36 4.8  
 W71551, W71551 me39e11.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8

AA646501, AA646501 vn12g12.r1 Stratagene mouse heart (#937316... 36 4.8  
 AA607056, AA607056 vm95e05.r1 Knowles Solter mouse blastocyst... 36 4.8  
 AA163340, AA163340 ms65b10.r1 Stratagene mouse embryonic carc... 36 4.8  
 AA110893, AA110893 mm02b04.r1 Stratagene mouse kidney (#93731... 36 4.8

---

AI030290, AI030290 UI-R-C0-jb-d-01-0-UI.s1 UI-R-C0 Rattus nor... 293 1e-77  
 C71833, C71833 Rice cDNA, partial sequence (E0428\_1A) 44 0.017  
 AA926551, AA926551 TENS1173 T. cruzi epimastigote normalized ... 42 0.069  
 AA875699, AA875699 TENU0170 T.cruzi epimastigote normalized c... 42 0.069  
 AA567661, AA567661 HL01595.5prime HL Drosophila melanogaster ... 40 0.27  
 C74504, C74504 Rice cDNA, partial sequence (E31753\_1A) 40 0.27  
 AA698333, AA698333 HL04291.5prime HL Drosophila melanogaster ... 38 1.1  
 AA441429, AA441429 LD16359.5prime LD Drosophila melanogaster ... 38 1.1  
 N68770, N68770 TgESTzy35b12.r1 TgRH Tachyzoite cDNA Toxoplasma... 38 1.1  
 AA246440, AA246440 LD05311.5prime LD Drosophila melanogaster ... 38 1.1  
 AA801776, AA801776 GM12975.5prime GM Drosophila melanogaster ... 38 1.1  
 N69148, N69148 TgESTzy33d10.r1 TgRH Tachyzoite cDNA Toxoplasma... 38 1.1  
 AA536484, AA536484 LD17114.5prime LD Drosophila melanogaster ... 38 1.1  
 AA392544, AA392544 LD11451.5prime LD Drosophila melanogaster ... 38 1.1  
 AA202696, AA202696 LD03182.5prime LD Drosophila melanogaster ... 38 1.1  
 AA392367, AA392367 LD11287.5prime LD Drosophila melanogaster ... 38 1.1  
 AA264629, AA264629 LD08245.5prime LD Drosophila melanogaster ... 38 1.1  
 AA735318, AA735318 LD21104.5prime LD Drosophila melanogaster ... 38 1.1  
 AA264558, AA264558 LD08333.5prime LD Drosophila melanogaster ... 38 1.1  
 AA536476, AA536476 LD17106.5prime LD Drosophila Embryo Drosop... 38 1.1  
 AA957774, AA957774 UI-R-E1-fv-f-04-0-UI.s1 UI-R-E1 Rattus nor... 38 1.1  
 AA567991, AA567991 HL02092.5prime HL Drosophila melanogaster ... 38 1.1  
 AA957876, AA957876 UI-R-E1-fv-f-04-0-UI.s2 UI-R-E1 Rattus nor... 38 1.1  
 AA892488, AA892488 EST196291 Normalized rat kidney, Bento Soa... 38 1.1  
 AA699001, AA699001 HL06668.5prime HL Drosophila melanogaster ... 36 4.3  
 C19706, C19706 Rice cDNA, partial sequence (E10809\_1A) 36 4.3  
 D41773, RICS4574A Rice cDNA, partial sequence (S4574\_2A). 36 4.3  
 C40680, C40680 C.elegans cDNA clone yk247c4 : 5' end, single... 36 4.3  
 AA698625, AA698625 HL05354.5prime HL Drosophila melanogaster ... 36 4.3  
 C82819, C82819 Oryctolagus cuniculus corneal endothelial cDN... 36 4.3  
 D46016, RICS10393A Rice cDNA, partial sequence (S10393\_3A). 36 4.3  
 AA536314, AA536314 LD16858.5prime LD Drosophila melanogaster ... 36 4.3  
 AA801012, AA801012 EST190509 Normalized rat muscle, Bento Soa... 36 4.3  
 D46541, RICS11289A Rice cDNA, partial sequence (S11289\_1A). 36 4.3  
 D47315, RICS12612A Rice cDNA, partial sequence (S12612\_1A). 36 4.3  
 AA735857, AA735857 GM09977.5prime GM Drosophila melanogaster ... 36 4.3  
 AA753921, AA753921 97BS0370 Rice Immature Seed Lambda ZAPII c... 36 4.3  
 D47243, RICS12505A Rice cDNA, partial sequence (S12505\_1A). 36 4.3  
 AA978395, AA978395 LD28411.5prime LD Drosophila melanogaster ... 36 4.3

---

D15134, RICC0136A	Rice cDNA, partial sequence (C0136A).	36	4.3
D46483, RICS11185A	Rice cDNA, partial sequence (S11185_1A).	36	4.3
D46618, RICS11395A	Rice cDNA, partial sequence (S11395_1A).	36	4.3
D46659, RICS11457A	Rice cDNA, partial sequence (S11457_1A).	36	4.3
D46719, RICS11572A	Rice cDNA, partial sequence (S11572_1A).	36	4.3
D48579, RICS14880A	Rice cDNA, partial sequence (S14880_2A).	36	4.3
AA802334, AA802334	GM04219.5prime GM Drosophila melanogaster ...	36	4.3
D46066, RICS10470A	Rice cDNA, partial sequence (S10470_1A).	36	4.3
D47037, RICS12104A	Rice cDNA, partial sequence (S12104_1A).	36	4.3
D46874, RICS11807A	Rice cDNA, partial sequence (S11807_2A).	36	4.3
D47174, RICS12340A	Rice cDNA, partial sequence (S12340_2A).	36	4.3
T04578, T04578	625 Lambda-PRL2 Arabidopsis thaliana cDNA clon...	36	4.3
C83675, C83675	Oryctolagus cuniculus corneal endothelial cDN...	36	4.3
D47950, RICS13762A	Rice cDNA, partial sequence (S13762_1A).	36	4.3
R90044, R90044	16399 Lambda-PRL2 Arabidopsis thaliana cDNA cl...	36	4.3
D46994, RICS12013A	Rice cDNA, partial sequence (S12013_2A).	36	4.3
AA440820, AA440820	LD15713.5prime LD Drosophila melanogaster ...	36	4.3
C72089, C72089	Rice cDNA, partial sequence (E0963_1A)	36	4.3
Z84004, SSZ84004	S.scrofa mRNA; expressed sequence tag (5'; ...	36	4.3
D47519, RICS13070A	Rice cDNA, partial sequence (S13070_1A).	36	4.3
C19735, C19735	Rice cDNA, partial sequence (E10858_1A)	36	4.3
D47231, RICS12462A	Rice cDNA, partial sequence (S12462_1A).	36	4.3
D47147, RICS12293A	Rice cDNA, partial sequence (S12293_1A).	36	4.3
AA950198, AA950198	LD30147.5prime LD Drosophila melanogaster ...	36	4.3
Z47624, ATTS4480	A. thaliana transcribed sequence; clone TAI...	36	4.3
D45955, RICS10259A	Rice cDNA, partial sequence (S10259_1A).	36	4.3
D47137, RICS12280A	Rice cDNA, partial sequence (S12280_1A).	36	4.3
D69927, CELK093H2F	C.elegans cDNA clone yk93h2 : 5' end, sin...	36	4.3
AA392275, AA392275	LD11117.5prime LD Drosophila melanogaster ...	36	4.3

SEQ ID NO:546

D87455, D87455	Human mRNA for KIAA0266 gene, complete cds	1164	0.0
Z99129, HS425C14	Human DNA sequence from clone 425C14 on chr...	42	0.20
D90900, D90900	Synechocystis sp. PCC6803 complete genome, 2/...	40	0.80
Z74281, SCYDL233W	S.cerevisiae chromosome IV reading frame O...	38	3.1
AL021528, HS394P21	Homo sapiens DNA sequence from PAC 394P21...	38	3.1
Z49155, HSL83D3	Human DNA from cosmid L83d3, Huntington's Di...	38	3.1
U33761, HSU33761	Human cyclin A/CDK2-associated p45 (Skp2) mR...	38	3.1
AF052832, AF052832	Trypanosoma cruzi CL Brener cosmid 1b21 ch...	38	3.1
Z98600, SPAC20G4	S.pombe chromosome I cosmid c20G4	38	3.1

Y09438, SPHUSPLUS *S.pombe* hus1+ gene 38 3.1  
D29951, MUSKIF Mouse mRNA for kinesin family protein KIF1a, ... 38 3.1

---

HUMAN ESTs

AA151187, AA151187 zo03c11.r1 Stratagene colon (#937204) Homo... 694 0.0  
AA824593, AA824593 oc83d10.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 670 0.0  
AA954862, AA954862 op20c03.s1 NCI\_CGAP\_Co12 Homo sapiens cDNA... 581 e-164  
T16360, T16360 NIB1193 Normalized infant brain, Bento Soares ... 517 e-145  
R54592, R54592 yg81h10.s1 Homo sapiens cDNA clone 40102 3'. 511 e-143  
AA373594, AA373594 EST85631 HSC172 cells I Homo sapiens cDNA ... 507 e-142  
AA100660, AA100660 zl90a05.r1 Stratagene colon (#937204) Homo... 383 e-104  
R42009, R42009 yg05b04.s1 Homo sapiens cDNA clone 31336 3'. 379 e-103  
AA249614, AA249614 k3041.seq.F Human fetal heart, Lambda ZAP ... 252 5e-65  
AA360633, AA360633 EST69800 T-cell lymphoma Homo sapiens cDNA... 182 4e-44  
AA053498, AA053498 zl70b11.r1 Stratagene colon (#937204) Homo... 38 1.5  
AA992442, AA992442 or85h03.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 38 1.5

AA065677, AA065677 mm43c03.r1 Stratagene mouse melanoma (#937... 297 4e-79  
AA529728, AA529728 vi38g12.r1 Beddington mouse embryonic regi... 42 0.035  
W91608, W91608 MTA.D10.092.A MTA adult mouse thymus library M... 42 0.035  
AA177186, AA177186 mt51a11.r1 Stratagene mouse embryonic carc... 42 0.035  
AA048008, AA048008 mj26h10.r1 Soares mouse embryo NbME13.5 14... 36 2.2  
AA637535, AA637535 vu10c02.r1 Barstead mouse myotubes MPLRB5 ... 36 2.2  
AA726355, AA726355 vu90c09.r1 Stratagene mouse skin (#937313)... 36 2.2  
AA404025, AA404025 va31c11.r1 GuayWoodford Beier mouse kidney... 36 2.2  
AA060014, AA060014 ml34d07.r1 Stratagene mouse testis (#93730... 36 2.2  
AA870617, AA870617 vq23h10.r1 Barstead stromal cell line MPLR... 36 2.2  
AA414112, AA414112 vc64f08.s1 Knowles Solter mouse 2 cell Mus... 36 2.2  
AA764250, AA764250 vv49e09.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.2

H34350, H34350 EST111226 Rat PC-12 cells, NGF-treated (9 days... 36 1.9  
C40718, C40718 *C.elegans* cDNA clone yk247f9 : 5' end, single... 36 1.9  
AA817925, AA817925 UI-R-A0-af-g-04-0-UI.s1 UI-R-A0 Rattus nor... 36 1.9  
AA955650, AA955650 UI-R-E1-fc-e-10-0-UI.s1 UI-R-E1 Rattus nor... 36 1.9

SEQ ID NO:547

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.35  
 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.35  
 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.35  
 U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.4  
 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.4

---

AC004301, AC004301 Drosophila melanogaster DNA sequence (PI D... 40 1.4  
 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.4

#### HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0  
 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0  
 AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143  
 AA551799, AA551799 nk04a11.s1 NCI\_CGAP\_Co2 Homo sapiens cDNA ... 363 4e-98  
 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 3e-95  
 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90  
 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA121198, AA121198 zl88g08.r1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.17  
 AA888147, AA888147 04h11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.67  
 AA946650, AA946650 oq38h09.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.67  
 AA435587, AA435587 zt85d07.s1 Soares testis NHT Homo sapiens ... 40 0.67  
 AA806381, AA806381 oc22g05.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.67  
 AA577174, AA577174 nm86e11.s1 NCI\_CGAP\_Co9 Homo sapiens cDNA ... 40 0.67  
 AA215903, AA215903 hp0042.seq.F Fetal heart, Lambda ZAP Expre... 40 0.67  
 AA262229, AA262229 zs25b12.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.67  
 AA969632, AA969632 op38h05.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.67  
 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. 40 0.67  
 AI005324, AI005324 ou13h07.x1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.67  
 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.67  
 AA860208, AA860208 ak48c10.s1 Soares testis NHT Homo sapiens ... 40 0.67  
 AA814296, AA814296 nz07d08.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.67  
 AA873216, AA873216 oh70f04.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.67  
 AA403143, AA403143 zv66d01.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.67  
 W45005, W45005 zc05c12.r1 Soares parathyroid tumor NbHPA Homo... 40 0.67  
 W32428, W32428 zc05c12.s1 Soares parathyroid tumor NbHPA Homo... 40 0.67  
 AA974988, AA974988 on59b06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.67  
 AA725024, AA725024 ah97h10.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67  
 AA757360, AA757360 ah98a01.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67  
 N72025, N72025 yz96g02.s1 Homo sapiens cDNA clone 290930 3'. 40 0.67  
 R02514, R02514 ye70b08.r1 Homo sapiens cDNA clone 123063 5'. 40 0.67  
 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.67  
 AA877455, AA877455 ob33g01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.67  
 AA041240, AA041240 zf07g05.r1 Soares fetal heart NbHH19W Homo... 40 0.67

AA903406, AA903406 ok62c11.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 40 0.67  
AA461270, AA461270 zx63b07.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.67  
AA927863, AA927863 om18a08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.67  
AA587486, AA587486 nn84e09.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.67  
W47466, W47466 zc34h02.r1 Soares senescent fibroblasts NbHSF ... 40 0.67

---

AA022495, AA022495 ze70e04.s1 Soares fetal heart NbHH19W Homo... 40 0.67  
AA460961, AA460961 zx63b07.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67  
AA393904, AA393904 zt85e06.r1 Soares testis NHT Homo sapiens ... 40 0.67  
AA872272, AA872272 oh72a11.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.67  
W47341, W47341 zc34h02.s1 Soares senescent fibroblasts NbHSF ... 40 0.67  
N72024, N72024 yz96g01.s1 Homo sapiens cDNA clone 290928 3'. 40 0.67  
N35076, N35076 yy19b08.s1 Homo sapiens cDNA clone 271671 3'. 40 0.67  
AA813115, AA813115 aj44d06.s1 Soares testis NHT Homo sapiens ... 40 0.67  
AA826741, AA826741 85f12.s1 NCI\_CGAP\_Pr24 Homo sapiens cDNA... 40 0.67  
AA160827, AA160827 zo62e01.s1 Stratagene pancreas (#937208) H... 40 0.67  
AI040354, AI040354 oy33d12.x1 Soares\_parathyroid\_tumor\_NbHPA ... 40 0.67  
AA573297, AA573297 nk98d09.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.67  
AA416559, AA416559 zu18c03.r1 Soares NhHMPu S1 Homo sapiens c... 40 0.67  
AA401079, AA401079 zv66d01.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67  
AI005204, AI005204 ou60c12.x1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.67  
N21678, N21678 yx63g01.s1 Soares melanocyte 2NbHM Homo sapien... 40 0.67  
AA824270, AA824270 aj29f01.s1 Soares testis NHT Homo sapiens ... 40 0.67  
AA504907, AA804907 oa89a01.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.67  
AA759038, AA759038 ah75h11.s1 Soares testis NHT Homo sapiens ... 40 0.67  
AA417295, AA417295 zu18c03.s1 Soares NhHMPu S1 Homo sapiens c... 40 0.67  
AA628544, AA628544 af27h12.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67  
AA618498, AA618498 np30a11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 40 0.67  
AA503727, AA503727 ne49g02.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.67  
AA514777, AA514777 ni24b01.s1 NCI\_CGAP\_Co4 Homo sapiens cDNA ... 40 0.67  
AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.67  
AA770473, AA770473 ah89h06.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67  
AA759377, AA759377 ah54a10.s1 Soares testis NHT Homo sapiens ... 40 0.67  
AA629243, AA629243 zu77e03.s1 Soares testis NHT Homo sapiens ... 40 0.67  
AA262162, AA262162 zs25b12.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.67  
AA161105, AA161105 zo58c05.s1 Stratagene pancreas (#937208) H... 38 2.6  
AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.6  
AA948291, AA948291 oq34d02.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 38 2.6  
AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.6  
N98472, N98472 yy65a04.r1 Homo sapiens cDNA clone 278382 5'. 38 2.6  
AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 2.6  
AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.6  
H30248, H30248 yp42a01.s1 Homo sapiens cDNA clone 190056 3'. 38 2.6  
R82551, R82551 yj19d06.r1 Homo sapiens cDNA clone 149195 5'. 38 2.6

AA616807, AA616807 vn68c05.r1 Barstead mouse irradiated colon... 180 1e-43  
 AA014223, AA014223 mh20a03.r1 Soares mouse placenta 4NbMP13.5... 40 0.24  
 AA014768, AA014768 mi66h04.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.24  


---

 AA103139, AA103139 mol17f05.r1 Life Tech mouse embryo 13 5dpc ... 40 0.24  
 AI048515, AI048515 uh61e08.r1 Soares mouse embryonic stem cel... 40 0.24  
 AA711859, AA711859 vu59c10.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA009071, AA009071 mg87b11.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.24  
 AA497479, AA497479 vh29b12.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.24  
 AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA007762, AA007762 mg76b03.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 W83172, W83172 mf09a06.r1 Soares mouse p3NMF19.5 Mus musculus... 40 0.24  
 AA106439, AA106439 ml59a08.r1 Stratagene mouse testis (#93730... 40 0.24  
 AA000268, AA000268 mg32e09.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 AI047077, AI047077 uh61g06.r1 Soares mouse embryonic stem cel... 40 0.24  
 AA543280, AA543280 vj80h05.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA106301, AA106301 ml81a09.r1 Stratagene mouse kidney (#93731... 40 0.24  
 AA467482, AA467482 ve01a10.r1 Soares mouse NbMH Mus musculus ... 40 0.24  
 AA797372, AA797372 vw27b08.r1 Soares mouse mammary gland NbMM... 40 0.24  
 W77724, W77724 me84h06.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.24  
 AA049011, AA049011 mj48c09.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 AA763419, AA763419 vw54a12.r1 Soares mouse mammary gland NMLM... 40 0.24  
 AA138067, AA138067 mq37c11.r1 Barstead MPLRB1 Mus musculus cD... 40 0.24  
 AA475425, AA475425 vh20g09.r1 Soares mouse mammary gland NbMM... 40 0.24  
 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.24  
 AA016868, AA016868 mh36e12.r1 Soares mouse placenta 4NbMP13.5... 40 0.24  
 AA230758, AA230758 my32g10.r1 Barstead mouse pooled organs MP... 40 0.24  
 AA833479, AA833479 uc91c03.r1 Soares mouse uterus NMPu Mus mu... 40 0.24  
 W61547, W61547 md57a02.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.24  
 AA033481, AA033481 mi42b07.r1 Soares mouse embryo NbME13.5 14... 40 0.24  
 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.94  
 AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 3.7  
 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 3.7  
 AA921560, AA921560 vy52c06.r1 Stratagene mouse lung 937302 Mu... 36 3.7  
 W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.7  
 AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 3.7  
 AA967316, AA967316 vj47a03.r1 Stratagene mouse skin (#937313)... 36 3.7  
 W62989, W62989 md88h12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.7  
 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 3.7  
 AA218431, AA218431 my07e05.r1 Barstead mouse lung MPLRB2 Mus ... 36 3.7  
 AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 3.7

AI047609, AI047609	uh63g07.r1 Soares mouse embryonic stem cel...	36	3.7
AA692425, AA692425	vt59b05.r1 Barstead mouse irradiated colon...	36	3.7
AA966976, AA966976	ua38f11.r1 Soares mouse mammary gland NbMM...	36	3.7
AA856298, AA856298	vw99b01.r1 Soares 2NbMT Mus musculus cDNA ...	36	3.7
W20935, W20935	mb96c07.r1 Soares mouse p3NMF19.5 Mus musculus...	36	3.7
AA230661, AA230661	mw15f08.r1 Soares mouse 3NME12 5 Mus muscu...	36	3.7
AA111190, AA111190	mp66b11.r1 Soares 2NbMT Mus musculus cDNA ...	36	3.7
AA840087, AA840087	uc99h12.r1 Soares mouse uterus NMPu Mus mu...	36	3.7
AA089210, AA089210	mo05d10.r1 Stratagene mouse lung 937302 Mu...	36	3.7
AI035925, AI035925	ub49e05.r1 Soares mouse mammary gland NbMM...	36	3.7
AA824205, AA824205	vy20g08.r1 Stratagene mouse macrophage (#9...	36	3.7
AA793845, AA793845	vr35e12.r1 Barstead mouse myotubes MPLRB5 ...	36	3.7
AA239210, AA239210	mx89e02.r1 Soares mouse NML Mus musculus c...	36	3.7
AA711873, AA711873	vu28e06.r1 Barstead mouse myotubes MPLRB5 ...	36	3.7
AA645119, AA645119	vs72d03.r1 Stratagene mouse skin (#937313)...	36	3.7
AA957268, AA957268	UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor...	42	0.053
C83463, C83463	Oryctolagus cuniculus corneal endothelial cDN...	38	0.84
AA859448, AA859448	UI-R-A0-bf-b-01-0-UI.s1 UI-R-A0 Rattus nor...	38	0.84
AA874930, AA874930	UI-R-E0-ci-b-05-0-UI.s1 UI-R-E0 Rattus nor...	38	0.84
C82607, C82607	Oryctolagus cuniculus corneal endothelial cDN...	38	0.84
AI009631, AI009631	EST204082 Normalized rat lung, Bento Soare...	38	0.84
AA801145, AA801145	EST190642 Normalized rat ovary, Bento Soar...	38	0.84
AI012760, AI012760	EST207211 Normalized rat placenta, Bento S...	38	0.84
AA956139, AA956139	UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor...	38	0.84
AA801144, AA801144	EST190641 Normalized rat ovary, Bento Soar...	38	0.84
AA660819, AA660819	00713 MtRHE Medicago truncatula cDNA 5'	38	0.84
AA859865, AA859865	UI-R-E0-cc-b-04-0-UI.s1 UI-R-E0 Rattus nor...	38	0.84
AI009035, AI009035	EST203486 Normalized rat embryo, Bento Soa...	38	0.84
AA859542, AA859542	UI-R-E0-br-d-03-0-UI.s1 UI-R-E0 Rattus nor...	38	0.84
T00613, T00613	wEST01334 Caenorhabditis elegans cDNA clone CE...	38	0.84
H32878, H32878	EST108396 Rat PC-12 cells, untreated Rattus sp...	36	3.3
AA125602, AA125602	JM00M011.QM3 Miracidia Sjc 3/96 Schistosom...	36	3.3
D45997, RICS10346A	Rice cDNA, partial sequence (S10346_1A).	36	3.3
AA943364, AA943364	EST198863 Normalized rat brain, Bento Soar...	36	3.3
C68472, C68472	C.elegans cDNA clone yk305a12 : 5' end, singl...	36	3.3
AA785775, AA785775	h4b05a1.fl Aspergillus nidulans 24hr asexu...	36	3.3
D46069, RICS10475A	Rice cDNA, partial sequence (S10475_1A).	36	3.3
AA660859, AA660859	00754 MtRHE Medicago truncatula cDNA 5' si...	36	3.3
Z33974, ATTS3035	A. thaliana transcribed sequence; clone PAP...	36	3.3
Z32603, ATTS2731	A. thaliana transcribed sequence; clone PAP...	36	3.3
AA955567, AA955567	UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor...	36	3.3
AA842765, AA842765	M-EST080 Sugarcane mature stalk Saccharum ...	36	3.3
Z32602, ATTS2730	A. thaliana transcribed sequence; clone PAP...	36	3.3



SEQ ID NO:548

U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.34  
 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.34  
 U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.34  
 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.3  
 AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 1.3  
 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.3  
 U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.3

## HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0  
 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0  
 AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143  
 AA551799, AA551799 nk04a11.s1 NCI\_CGAP\_Co2 Homo sapiens cDNA ... 363 3e-98  
 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 3e-95  
 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90  
 AA121198, AA121198 zl88g08.r1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.16  
 AA041240, AA041240 zf07g05.r1 Soares fetal heart NbHH19W Homo... 40 0.64  
 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.64  
 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.64  
 AA573297, AA573297 nk98d09.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.64  
 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. 40 0.64  
 AA888147, AA888147 04h11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.64  
 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.64  
 AA877455, AA877455 ob33g01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.64  
 R02514, R02514 ye70b08.r1 Homo sapiens cDNA clone 123063 5'. 40 0.64  
 AA514777, AA514777 ni24b01.s1 NCI\_CGAP\_Co4 Homo sapiens cDNA ... 40 0.64  
 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.5  
 N98472, N98472 yy65a04.r1 Homo sapiens cDNA clone 278382 5'. 38 2.5  
 AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 2.5  
 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.5  
 AA948291, AA948291 oq34d02.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 38 2.5  
 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.5

AA616807, AA616807 vn68c05.r1 Barstead mouse irradiated colon... 180 1e-43  
 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.23  
 AA230758, AA230758 my32g10.r1 Barstead mouse pooled organs MP... 40 0.23  
 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.23  
 AA763419, AA763419 vw54a12.r1 Soares mouse mammary gland NMLM... 40 0.23  


---

 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.23  
 AA106439, AA106439 ml59a08.r1 Stratagene mouse testis (#93730... 40 0.23  
 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.23  
 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.91  
 AA711873, AA711873 vu28e06.r1 Barstead mouse myotubes MPLRB5 ... 36 3.6  
 AA856298, AA856298 vw99b01.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.6  
 W20935, W20935 mb96c07.r1 Soares mouse p3NMF19.5 Mus musculus... 36 3.6  
 AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 3.6  
 AA921560, AA921560 vy52c06.r1 Stratagene mouse lung 937302 Mu... 36 3.6  
 AA692425, AA692425 vt59b05.r1 Barstead mouse irradiated colon... 36 3.6  
 W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.6  
 AA840087, AA840087 uc99h12.r1 Soares mouse uterus NMPu Mus mu... 36 3.6  
 AA111190, AA111190 mp66b11.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.6  
 AA239210, AA239210 mx89e02.r1 Soares mouse NML Mus musculus c... 36 3.6  
 AA793845, AA793845 vr35e12.r1 Barstead mouse myotubes MPLRB5 ... 36 3.6  
 AA645119, AA645119 vs72d03.r1 Stratagene mouse skin (#937313)... 36 3.6  
 AA230661, AA230661 mw15f08.r1 Soares mouse 3NME12 5 Mus muscu... 36 3.6  
 AA824205, AA824205 vy20g08.r1 Stratagene mouse macrophage (#9... 36 3.6  
 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 3.6  
 AA967316, AA967316 vj47a03.r1 Stratagene mouse skin (#937313)... 36 3.6  
 AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 3.6  
 AI035925, AI035925 ub49e05.r1 Soares mouse mammary gland NbMM... 36 3.6  
 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 3.6  
 AA218431, AA218431 my07e05.r1 Barstead mouse lung MPLRB2 Mus ... 36 3.6  
 W62989, W62989 md88h12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.6  
 AA089210, AA089210 mo05d10.r1 Stratagene mouse lung 937302 Mu... 36 3.6  
 AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 3.6  
 AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 3.6  
  
 AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.052  
 T00613, T00613 wEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.81  
 AA660819, AA660819 00713 MtrHE Medicago truncatula cDNA 5' ... 38 0.81  
 AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.81  
 D46069, RICS10475A Rice cDNA, partial sequence (S10475\_1A). ... 36 3.2  
 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.2  
 AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.2  
 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 3.2  
 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.2  
 AA660859, AA660859 00754 MtrHE Medicago truncatula cDNA 5' si... 36 3.2

D45997, RICS10346A Rice cDNA, partial sequence (S10346\_1A). 36 3.2  
 Z32603, ATTS2731 *A. thaliana* transcribed sequence; clone PAP... 36 3.2  
 AA785775, AA785775 h4b05a1.f1 *Aspergillus nidulans* 24hr asexu... 36 3.2  
 C68472, C68472 *C.elegans* cDNA clone yk305a12 : 5' end, singl... 36 3.2  
 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.2  
 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.2  
 Z32602, ATTS2730 *A. thaliana* transcribed sequence; clone PAP... 36 3.2

---

SEQ ID NO:549

U79271, HSU79271 Human clones 23920 and 23921 mRNA sequence 650 0.0  
 AC000395, AC000395 Genomic sequence from Human 9q34, complete... 42 0.28  
 AC004636, AC004636 *Homo sapiens* chromosome 5, P1 clone 1268h6... 42 0.28  
 M94579, HUMCEL Human carboxyl ester lipase (CEL) gene, comple... 42 0.28  
 AC002097, AC002097 *Homo sapiens* chromosome 9q34, clone 246H5,... 42 0.28  
 AB006709, AB006709 *Vibrio alginolyticus* rpoN gene for RNA po... 42 0.28  
 Z47074, CEK07C10 *Caenorhabditis elegans* cosmid K07C10, compl... 40 1.1  
 AC004755, AC004755 *Homo sapiens* chromosome 19, fosmid 37502, ... 40 1.1  
 Z28051, SCYKL051W *S.cerevisiae* chromosome XI reading frame O... 40 1.1  
 AF022655, AF022655 *Homo sapiens* cep250 centrosome associated ... 40 1.1  
 AB006708, AB006708 *Arabidopsis thaliana* genomic DNA, chromos... 40 1.1  
 AF049105, AF049105 *Homo sapiens* centrosomal Nek2-associated p... 40 1.1  
 Z28050, SCYKL050C *S.cerevisiae* chromosome XI reading frame O... 40 1.1  
 X75781, SCXI286K *S.cerevisiae* chromosome XI (28.6 kb) DNA fo... 40 1.1  
 Y16899, DMY16899 *Drosophila melanogaster* mRNA for optomotor-... 38 4.3  
 M87854, RATBARK1 *Rattus norvegicus* beta-adrenergic receptor k... 38 4.3  
 M74822, RATMHTLL Rat MHC class I TL-like protein gene, comple... 38 4.3  
 M80776, HUMBARK1A Human beta-adrenergic receptor kinase 1 mRN... 38 4.3  
 D84549, YSACA *Candida tropicalis* DNA for carnitine acetyltra... 38 4.3  
 L23127, RATRMCI *Rattus norvegicus* germline MHC class I gene, ... 38 4.3  
 AC004257, AC004257 *Homo sapiens* chromosome 19, cosmid R33209,... 38 4.3  
 U70850, CELF28F9 *Caenorhabditis elegans* cosmid F28F9 38 4.3  
 U88309, CELT23B3 *Caenorhabditis elegans* cosmid T23B3 38 4.3  
 X53421, DVCHOS18 *D. virilis* s18, s15, s19, s16 chorion prote... 38 4.3  
 D89245, D89245 *Schizosaccharomyces pombe* mRNA, partial cds, ... 38 4.3  
 AF009623, AF009623 *Parascaris univalens* PUMA1 (puma1) mRNA, c... 38 4.3  
 S48813, S48813 beta-adrenergic receptor kinase [rats, brain, ... 38 4.3  
 Z67883, CEK02A4 *Caenorhabditis elegans* cosmid K02A4, complet... 38 4.3  
 U90567, GGU90567 *Gallus gallus* glutamine rich protein mRNA, p... 38 4.3  
 M98498, BOVEZRINA *Bos taurus* ezrin mRNA, complete cds. 38 4.3  
 M34073, MUSMHT10C *Mus musculus* (clone T10-c) MHC class I cell... 38 4.3

S81843, S81843 beta-adrenergic receptor kinase 1 [Syrian hams... 38 4.3  
 X61157, HSBARK H.sapiens mRNA for beta-adrenergic receptor k... 38 4.3  
 U08438, HSNBARKS4 Human beta-adrenergic receptor kinase (ADRB... 38 4.3  
 U39674, CELC06E2 Caenorhabditis elegans cosmid C06E2. 38 4.3

## HUMAN ESTs

W29097, W29097 56d11 Human retina cDNA randomly primed sublib... 1045 0.0  
 AA886109, AA886109 ny44f05.s1 NCI\_CGAP\_Pr12 Homo sapiens cDNA... 656 0.0  
 AA829894, AA829894 oe51e12.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 650 0.0  
 AA879456, AA879456 oj91g03.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 650 0.0  
 AA029201, AA029201 zk12f08.s1 Soares pregnant uterus NbHPU Ho... 650 0.0  
 AA102109, AA102109 zk87g11.s1 Soares pregnant uterus NbHPU Ho... 650 0.0  
 AA843811, AA843811 ak09c08.s1 Soares parathyroid tumor NbHPA ... 650 0.0  
 W72147, W72147 zd70f08.s1 Soares fetal heart NbHH19W Homo sap... 650 0.0  
 N51485, N51485 yz04e06.s1 Homo sapiens cDNA clone 282082 3'. 650 0.0  
 AI033069, AI033069 ow93f02.s1 Soares\_fetal\_liver\_spleen\_1NFLS... 642 0.0  
 AA161465, AA161465 zo73a06.s1 Stratagene pancreas (#937208) H... 638 0.0  
 N51277, N51277 yz14d07.s1 Homo sapiens cDNA clone 283021 3'. 636 e-180  
 N64528, N64528 yz91e06.s1 Homo sapiens cDNA clone 290434 3'. 636 e-180  
 H99906, H99906 yx32h10.s1 Homo sapiens cDNA clone 263491 3'. 636 e-180  
 AA812519, AA812519 ai79b03.s1 Soares testis NHT Homo sapiens ... 636 e-180  
 R71679, R71679 yj85e08.s1 Homo sapiens cDNA clone 155558 3'. 628 e-178  
 AA744290, AA744290 ny51d02.s1 NCI\_CGAP\_Pr18 Homo sapiens cDNA... 626 e-177  
 AI038590, AI038590 ox34e03.s1 Soares\_total\_fetus\_Nb2HF8\_9w Ho... 624 e-177  
 AA099913, AA099913 zk87g11.r1 Soares pregnant uterus NbHPU Ho... 624 e-177  
 AA083859, AA083859 zn16d06.s1 Stratagene neuroepithelium NT2R... 622 e-176  
 AA883684, AA883684 al58a05.s1 Soares NFL T GBC S1 Homo sapien... 613 e-173  
 R39448, R39448 yc95d03.s1 Homo sapiens cDNA clone 23921 3'. 593 e-167  
 R36854, R36854 yf52c07.s1 Homo sapiens cDNA clone 25899 3'. 591 e-167  
 H98684, H98684 yx17g01.s1 Homo sapiens cDNA clone 262032 3'. 585 e-165  
 R07471, R07471 ye97a06.s1 Homo sapiens cDNA clone 125650 3'. 581 e-164  
 AA910762, AA910762 ol25h06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 559 e-157  
 AA083954, AA083954 zn17d06.s1 Stratagene neuroepithelium NT2R... 555 e-156  
 AA346369, AA346369 EST52776 Fetal heart II Homo sapiens cDNA ... 545 e-153  
 R54092, R54092 yg98d07.s1 Homo sapiens cDNA clone 41818 3'. 539 e-151  
 H09074, H09074 yl97a06.s1 Homo sapiens cDNA clone 46164 3'. 535 e-150  
 N21975, N21975 yw30c10.s1 Homo sapiens cDNA clone 253746 3'. 533 e-149  
 D59844, HUM070E11A Human fetal brain cDNA 3'-end GEN-070E11. 466 e-129  
 H11525, H11525 ym15h07.s1 Homo sapiens cDNA clone 48232 3'. 442 e-122  
 AA971254, AA971254 op73c08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 442 e-122  
 W77907, W77907 zd70f08.r1 Soares fetal heart NbHH19W Homo sap... 428 e-118  
 AA878973, AA878973 oj26d11.s1 NCI\_CGAP\_Kid3 Homo sapiens cDNA... 389 e-106  
 AA715235, AA715235 nv10g01.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 357 2e-96

AA328928, AA328928 EST32475 Embryo, 12 week I Homo sapiens cD... 355 7e-96  
 AA860455, AA860455 aj80f02.s1 Soares parathyroid tumor NbHPA ... 283 2e-74  
 AA026096, AA026096 ze97a04.r1 Soares fetal heart NbHH19W Homo... 268 1e-69  
 AA026516, AA026516 ze97a04.s1 Soares fetal heart NbHH19W Homo... 172 6e-41  
 T26899, T26899 ESTDIR509 Homo sapiens cDNA clone CDDIR509 3'. 170 2e-40  


---

 N71178, N71178 yw30c10.r1 Homo sapiens cDNA clone 253746 5'. 165 1e-38  
 AA372290, AA372290 EST84170 Raji cells, cyclohexamide treated... 98 3e-18  
 AI038890, AI038890 ox84g12.x1 Soares\_senescent\_fibroblasts\_Nb... 40 0.53  
 D81647, HUM180D08B Human fetal brain cDNA 5'-end GEN-180D08. 38 2.1  
 AA452630, AA452630 zx33f08.r1 Soares total fetus Nb2HF8 9w Ho... 38 2.1  
 AA682624, AA682624 zi19g01.s1 Soares fetal liver spleen 1NFLS... 38 2.1  
 AA742364, AA742364 ny89c12.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.1  
 AA907234, AA907234 ol03h08.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 38 2.1  
 T09391, T09391 EST07284 Homo sapiens cDNA clone HIBBT71 5' en... 38 2.1  
 AA161236, AA161236 zo59h07.s1 Stratagene pancreas (#937208) H... 38 2.1  
 AA252941, AA252941 zr50g09.r1 Soares NhHMPu S1 Homo sapiens c... 38 2.1  
 AA252245, AA252245 zr64g07.s1 Soares NhHMPu S1 Homo sapiens c... 38 2.1  
 AA780678, AA780678 ac70h01.s1 Stratagene fetal retina 937202 ... 38 2.1  
 W05501, W05501 za84a12.r1 Soares fetal lung NbHL19W Homo sapi... 38 2.1  
 AI039908, AI039908 ox25f07.x1 Soares\_total\_fetus\_Nb2HF8\_9w Ho... 38 2.1  
 AA280664, AA280664 zs99f09.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.1  
 AA973566, AA973566 oo46f09.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 38 2.1  
 N27253, N27253 yx17g01.r1 Homo sapiens cDNA clone 262032 5'. 38 2.1  
 AA995707, AA995707 os29c09.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 38 2.1  
 AI016407, AI016407 ot72e09.s1 Soares\_total\_fetus\_Nb2HF8\_9w Ho... 38 2.1  
 N70619, N70619 za84a12.s1 Homo sapiens cDNA clone 299230 3'. 38 2.1  
 AA242923, AA242923 zr64g07.r1 Soares NhHMPu S1 Homo sapiens c... 38 2.1  
 AA938631, AA938631 oo96f07.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 38 2.1  
 AA985290, AA985290 am74g03.s1 Stratagene schizo brain S11 Hom... 38 2.1  
  
 AA690806, AA690806 vt25h10.r1 Barstead mouse myotubes MPLRB5 ... 377 e-103  
 AA155014, AA155014 mr99h05.r1 Stratagene mouse embryonic carc... 180 8e-44  
 AA269966, AA269966 va57d06.r1 Soares mouse 3NME12 5 Mus muscu... 172 2e-41  
 AA089195, AA089195 mo05h11.r1 Stratagene mouse lung 937302 Mu... 163 2e-38  
 AA466212, AA466212 vg86g02.r1 Barstead mouse pooled organs MP... 68 8e-10  
 AA423476, AA423476 ve76d07.r1 Soares mouse mammary gland NbMM... 60 2e-07  
 AA597213, AA597213 vo28a05.r1 Barstead mouse irradiated colon... 40 0.19  
 AA396266, AA396266 vb45c01.r1 Soares mouse lymph node NbMLN M... 40 0.19  
 AA967806, AA967806 uh05d06.r1 Soares mouse hypothalamus NMHy ... 38 0.75  
 AA591111, AA591111 vm12c06.r1 Knowles Solter mouse blastocyst... 38 0.75  
 W65797, W65797 me14g02.r1 Soares mouse embryo NbME13.5 14.5 M... 38 0.75  
 AA153891, AA153891 mq56e05.r1 Soares 2NbMT Mus musculus cDNA ... 38 0.75

AI019772, AI019772 ua90h02.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA472253, AA472253 vh10g05.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA230895, AA230895 mw14g07.r1 Soares mouse 3NME12 5 Mus muscu... 36 3.0  
 W18052, W18052 mb83g03.r1 Soares mouse p3NMF19.5 Mus musculus... 36 3.0  
 AA797681, AA797681 vx66c12.r1 Stratagene mouse skin (#937313)... 36 3.0  


---

 W66734, W66734 mc26g05.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.0  
 AA968020, AA968020 uh07g01.r1 Soares mouse hypothalamus NMHy ... 36 3.0  
 AA051644, AA051644 mj55d12.r1 Soares mouse embryo NbME13.5 14... 36 3.0  
 AA162797, AA162797 mr29g09.r1 Soares mouse 3NbMS Mus musculus... 36 3.0  
 AA549644, AA549644 vk80f08.s1 Knowles Solter mouse 2 cell Mus... 36 3.0  
 AA273295, AA273295 vc01e01.r1 Soares mouse lymph node NbMLN M... 36 3.0  
 AA048480, AA048480 mj33d08.r1 Soares mouse embryo NbME13.5 14... 36 3.0  
 AA098207, AA098207 mn83d01.r1 Stratagene mouse Tcell 937311 M... 36 3.0  
 AA027381, AA027381 mi05c06.r1 Soares mouse placenta 4NbMP13.5... 36 3.0  
 AA544474, AA544474 vk33h06.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA416466, AA416466 vd15c09.s1 Knowles Solter mouse 2 cell Mus... 36 3.0  
 AA285999, AA285999 vb88h08.r1 Soares mouse 3NbMS Mus musculus... 36 3.0  
 AA175025, AA175025 ms85f06.r1 Soares mouse 3NbMS Mus musculus... 36 3.0  
 AA544386, AA544386 vk33f06.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA175557, AA175557 ms96g04.r1 Soares mouse 3NbMS Mus musculus... 36 3.0  
 AA711924, AA711924 vu59f09.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA734052, AA734052 vv22c10.r1 Stratagene mouse heart (#937316... 36 3.0  
 W53738, W53738 md12a12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.0  
 AA611837, AA611837 vo82a06.r1 Barstead mouse myotubes MPLRB5 ... 36 3.0  
 AA879531, AA879531 vv96f06.r1 Soares mouse mammary gland NbMM... 36 3.0  
 AA288625, AA288625 vb23g09.r1 Soares mouse 3NbMS Mus musculus... 36 3.0  
  
 AA784124, AA784124 d2b06a1.f1 Aspergillus nidulans 24hr asexu... 38 0.67  
 AI044911, AI044911 UI-R-C1-kk-e-05-0-UI.s1 UI-R-C1 Rattus nor... 36 2.6  
 AA550452, AA550452 1605m3 gmbPfHB3.1, G. Roman Reddy Plasmodi... 36 2.6  
 F20017, ATTS6056 A. thaliana transcribed sequence; clone TAP... 36 2.6  
 AA786697, AA786697 k5d01a1.f1 Aspergillus nidulans 24hr asexu... 36 2.6  
 AA433457, AA433457 SW3ICA2345SK Brugia malayi infective larva... 36 2.6

SEQ ID NO:550

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.20  
 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.20  
 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.20  
 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 0.80

AC004301, AC004301 *Drosophila melanogaster* DNA sequence (P1 D... 40 0.80  
 U86662, LEU86662 *Lycopersicon esculentum* VPS41 (tVPS41) mRNA,... 40 0.80  
 Y14330, HSY14330 *Homo sapiens* partial mRNA for jagged2 protein 38 3.2  
 AF003521, AF003521 *Homo sapiens* Jagged 2 mRNA, complete cds 38 3.2  
 AF029778, AF029778 *Homo sapiens* Jagged2 (JAG2) mRNA, complete... 38 3.2  


---

 AF020201, AF020201 *Homo sapiens* Jagged 2 mRNA, complete cds 38 3.2  
 Z71523, SCYNL247W *S.cerevisiae* chromosome XIV reading frame ... 38 3.2  
 AF029779, AF029779 *Homo sapiens* hJAG2.del-E6 (JAG2) mRNA, alt... 38 3.2  
 U70049, RNU70049 *Rattus norvegicus* jagged2 precursor gene, pa... 38 3.2  
 X96722, SCCHXIVL *S.cerevisiae* DNA region from chromosome XIV... 38 3.2  
 AF005938, AF005938 *Cavia porcellus* L-type voltage-dependent c... 38 3.2  
 X78972, SBSTRBF *S.bluesensis* ISP 5564 genes strB and strF 38 3.2  
 X94912, HSPR22 *H.sapiens* Pr22 gene 38 3.2

## HUMAN ESTs

AA860926, AA860926 ak22d06.s1 Soares testis NHT *Homo sapiens* ... 650 0.0  
 AA348243, AA348243 EST54707 Hippocampus I *Homo sapiens* cDNA 5... 513 e-144  
 AA551799, AA551799 nk04a11.s1 NCI\_CGAP\_Co2 *Homo sapiens* cDNA ... 363 2e-98  
 AA327309, AA327309 EST30621 Colon I *Homo sapiens* cDNA 5' end 353 2e-95  
 AA344913, AA344913 EST50856 Gall bladder II *Homo sapiens* cDNA... 337 1e-90  
 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) *Homo*... 317 1e-84  
 AA121198, AA121198 zl88g08.r1 Stratagene colon (#937204) *Homo*... 317 1e-84  
 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR *Homo sapie*... 42 0.098  
 AI005204, AI005204 ou60c12.x1 NCI\_CGAP\_Br2 *Homo sapiens* cDNA ... 40 0.39  
 AA757360, AA757360 ah98a01.s1 Soares NFL T GBC S1 *Homo sapien*... 40 0.39  
 AI005324, AI005324 ou13h07.x1 Soares\_NFL\_T\_GBC\_S1 *Homo sapien*... 40 0.39  
 AA416559, AA416559 zu18c03.r1 Soares NhHMPu S1 *Homo sapiens* c... 40 0.39  
 AA262162, AA262162 zs25b12.r1 NCI\_CGAP\_GCB1 *Homo sapiens* cDNA... 40 0.39  
 AA824270, AA824270 aj29f01.s1 Soares testis NHT *Homo sapiens* ... 40 0.39  
 AA826741, AA826741 85f12.s1 NCI\_CGAP\_Pr24 *Homo sapiens* cDNA... 40 0.39  
 AA813115, AA813115 aj44d06.s1 Soares testis NHT *Homo sapiens* ... 40 0.39  
 AA403143, AA403143 zv66d01.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.39  
 AA725024, AA725024 ah97h10.s1 Soares NFL T GBC S1 *Homo sapien*... 40 0.39  
 AA804907, AA804907 oa89a01.s1 NCI\_CGAP\_GCB1 *Homo sapiens* cDNA... 40 0.39  
 AA628544, AA628544 af27h12.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39  
 AA618498, AA618498 np30a11.s1 NCI\_CGAP\_Pr22 *Homo sapiens* cDNA... 40 0.39  
 AA503727, AA503727 ne49g02.s1 NCI\_CGAP\_Co3 *Homo sapiens* cDNA ... 40 0.39  
 AA460961, AA460961 zx63b07.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39  
 AA770473, AA770473 ah89h06.s1 Soares NFL T GBC S1 *Homo sapien*... 40 0.39  
 AA759377, AA759377 ah54a10.s1 Soares testis NHT *Homo sapiens* ... 40 0.39  
 AA629243, AA629243 zu77e03.s1 Soares testis NHT *Homo sapiens* ... 40 0.39  
 AA903406, AA903406 ok62c11.s1 NCI\_CGAP\_GC4 *Homo sapiens* cDNA ... 40 0.39  
 AA215903, AA215903 hp0042.seq.F Fetal heart, Lambda ZAP Expre... 40 0.39

AA160827, AA160827 zo62e01.s1 Stratagene pancreas (#937208) H... 40 0.39  
 AA577174, AA577174 nm86e11.s1 NCI\_CGAP\_Co9 Homo sapiens cDNA ... 40 0.39  
 AA969632, AA969632 op38h05.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.39  
 N72025, N72025 yz96g02.s1 Homo sapiens cDNA clone 290930 3'. 40 0.39  
 AA974988, AA974988 on59b06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.39  


---

 W32428, W32428 zo05c12.s1 Soares parathyroid tumor NbHPA Homo... 40 0.39  
 N21678, N21678 yx63g01.s1 Soares melanocyte 2NbHM Homo sapien... 40 0.39  
 AA860208, AA860208 ak48c10.s1 Soares testis NHT Homo sapiens ... 40 0.39  
 AA814296, AA814296 nz07d08.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.39  
 AA806381, AA806381 oc22g05.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.39  
 AA435587, AA435587 zt85d07.s1 Soares testis NHT Homo sapiens ... 40 0.39  
 W45005, W45005 zo05c12.r1 Soares parathyroid tumor NbHPA Homo... 40 0.39  
 AA393904, AA393904 zt85e06.r1 Soares testis NHT Homo sapiens ... 40 0.39  
 AA759038, AA759038 ah75h11.s1 Soares testis NHT Homo sapiens ... 40 0.39  
 AA927863, AA927863 om18a08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.39  
 AA461270, AA461270 zx63b07.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.39  
 AA417295, AA417295 zu18c03.s1 Soares NhHMPu S1 Homo sapiens c... 40 0.39  
 W47466, W47466 zc34h02.r1 Soares senescent fibroblasts NbHSF ... 40 0.39  
 AA262229, AA262229 zs25b12.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.39  
 AA587486, AA587486 nn84e09.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.39  
 AA401079, AA401079 zv66d01.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39  
 AA872272, AA872272 oh72a11.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.39  
 W47341, W47341 zc34h02.s1 Soares senescent fibroblasts NbHSF ... 40 0.39  
 N72024, N72024 yz96g01.s1 Homo sapiens cDNA clone 290928 3'. 40 0.39  
 N35076, N35076 yy19b08.s1 Homo sapiens cDNA clone 271671 3'. 40 0.39  
 AI040354, AI040354 oy33d12.x1 Soares\_parathyroid\_tumor\_NbHPA ... 40 0.39  
 AA946650, AA946650 oq38h09.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.39  
 AA022495, AA022495 ze70e04.s1 Soares fetal heart NbHH19W Homo... 40 0.39  
 AA873216, AA873216 oh70f04.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.39  
 R82551, R82551 yj19d06.r1 Homo sapiens cDNA clone 149195 5'. 38 1.5  
 H30248, H30248 yp42a01.s1 Homo sapiens cDNA clone 190056 3'. 38 1.5  
 AA161105, AA161105 zo58c05.s1 Stratagene pancreas (#937208) H... 38 1.5  
 AA948291, AA948291 oq34d02.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 38 1.5  
 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 1.5  
 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 1.5  
 AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 1.5

AA616807, AA616807 vn68c05.r1 Barstead mouse irradiated colon... 180 6e-44  
 AA467482, AA467482 ve01a10.r1 Soares mouse NbMH Mus musculus ... 40 0.14  
 AA543280, AA543280 vj80h05.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA009071, AA009071 mg87b11.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 AA106439, AA106439 ml59a08.r1 Stratagene mouse testis (#93730... 40 0.14



AA014768, AA014768 mi66h04.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA049011, AA049011 mj48c09.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.14  
 AA763419, AA763419 vw54a12.r1 Soares mouse mammary gland NMLM... 40 0.14  


---

 AA016868, AA016868 mh36e12.r1 Soares mouse placenta 4NbMP13.5... 40 0.14  
 AA833479, AA833479 uc91c03.r1 Soares mouse uterus NMPu Mus mu... 40 0.14  
 AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA711859, AA711859 vu59c10.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.14  
 AA230758, AA230758 my32g10.r1 Barstead mouse pooled organs MP... 40 0.14  
 AA497479, AA497479 vh29b12.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA138067, AA138067 mq37c11.r1 Barstead MPLRB1 Mus musculus cD... 40 0.14  
 AA103139, AA103139 mo17f05.r1 Life Tech mouse embryo 13 5dpc ... 40 0.14  
 AI047077, AI047077 uh61g06.r1 Soares mouse embryonic stem cel... 40 0.14  
 AI048515, AI048515 uh61e08.r1 Soares mouse embryonic stem cel... 40 0.14  
 W61547, W61547 md57a02.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.14  
 AA007762, AA007762 mg76b03.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 AA000268, AA000268 mg32e09.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 AA475425, AA475425 vh20g09.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA014223, AA014223 mh20a03.r1 Soares mouse placenta 4NbMP13.5... 40 0.14  
 AA797372, AA797372 vw27b08.r1 Soares mouse mammary gland NbMM... 40 0.14  
 AA106301, AA106301 ml81a09.r1 Stratagene mouse kidney (#93731... 40 0.14  
 AA033481, AA033481 mi42b07.r1 Soares mouse embryo NbME13.5 14... 40 0.14  
 W77724, W77724 me84h06.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.14  
 W83172, W83172 mf09a06.r1 Soares mouse p3NMF19.5 Mus musculus... 40 0.14  
 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.14  
 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.55  
 AA111190, AA111190 mp66b11.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.2  
 AA840087, AA840087 uc99h12.r1 Soares mouse uterus NMPu Mus mu... 36 2.2  
 AA239210, AA239210 mx89e02.r1 Soares mouse NML Mus musculus c... 36 2.2  
 AA824205, AA824205 vy20g08.r1 Stratagene mouse macrophage (#9... 36 2.2  
 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 2.2  
 AA089210, AA089210 mo05d10.r1 Stratagene mouse lung 937302 Mu... 36 2.2  
 AA711873, AA711873 vu28e06.r1 Barstead mouse myotubes MPLRB5 ... 36 2.2  
 AA793845, AA793845 vr35e12.r1 Barstead mouse myotubes MPLRB5 ... 36 2.2  
 AA645119, AA645119 vs72d03.r1 Stratagene mouse skin (#937313)... 36 2.2  
 AA967316, AA967316 vj47a03.r1 Stratagene mouse skin (#937313)... 36 2.2  
 W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.2  
 AA218431, AA218431 my07e05.r1 Barstead mouse lung MPLRB2 Mus ... 36 2.2  
 AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 2.2  
 AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 2.2  
 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 2.2  
 AI047609, AI047609 uh63g07.r1 Soares mouse embryonic stem cel... 36 2.2  
 AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 2.2

AA856298, AA856298 vw99b01.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.2  
 AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 2.2

---

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.031  
 AA801145, AA801145 EST190642 Normalized rat ovary, Bento Soar... 38 0.48  
 AI012760, AI012760 EST207211 Normalized rat placenta, Bento S... 38 0.48  
 AA874930, AA874930 UI-R-E0-ci-b-05-0-UI.s1 UI-R-E0 Rattus nor... 38 0.48  
 C82607, C82607 Oryctolagus cuniculus corneal endothelial cDN... 38 0.48  
 AA859865, AA859865 UI-R-E0-cc-b-04-0-UI.s1 UI-R-E0 Rattus nor... 38 0.48  
 C83463, C83463 Oryctolagus cuniculus corneal endothelial cDN... 38 0.48  
 AA801144, AA801144 EST190641 Normalized rat ovary, Bento Soar... 38 0.48  
 AA859448, AA859448 UI-R-A0-bf-b-01-0-UI.s1 UI-R-A0 Rattus nor... 38 0.48  
 AI009631, AI009631 EST204082 Normalized rat lung, Bento Soare... 38 0.48  
 AI009035, AI009035 EST203486 Normalized rat embryo, Bento Soa... 38 0.48  
 AA859542, AA859542 UI-R-E0-br-d-03-0-UI.s1 UI-R-E0 Rattus nor... 38 0.48  
 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 1.9  
 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 1.9  
 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 1.9  
 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 1.9  
 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 1.9  
 AA660859, AA660859 00754 MtrHE Medicago truncatula cDNA 5' si... 36 1.9  
 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 1.9  
 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 1.9  
 AA785775, AA785775 h4b05a1.fl Aspergillus nidulans 24hr asexu... 36 1.9

SEQ ID NO:551

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.36  
 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.36  
 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.36  
 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.4  
 U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.4  
 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.4  
 AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 1.4

#### HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0  
 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0

AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143  
 AA551799, AA551799 nk04a11.s1 NCI\_CGAP\_Co2 Homo sapiens cDNA ... 363 4e-98  
 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 4e-95  
 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90  
 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo 317 2e-84  


---

 AA121198, AA121198 zl88g08.r1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.17  
 AA877455, AA877455 ob33g01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.68  
 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. 40 0.68  
 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.68  
 AA573297, AA573297 nk98d09.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.68  
 AA041240, AA041240 zf07g05.r1 Soares fetal heart NbHH19W Homo... 40 0.68  
 AA514777, AA514777 ni24b01.s1 NCI\_CGAP\_Co4 Homo sapiens cDNA ... 40 0.68  
 R02514, R02514 ye70b08.r1 Homo sapiens cDNA clone 123063 5'. 40 0.68  
 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.68  
 AA888147, AA888147 04h11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.68  
 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.68  
 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.7  
 N98472, N98472 yy65a04.r1 Homo sapiens cDNA clone 278382 5'. 38 2.7  
 AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 2.7  
 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.7  
 AA948291, AA948291 oq34d02.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 38 2.7  
 R14449, R14449 yf81h09.r1 Homo sapiens cDNA clone 29034 5'. 38 2.7  
 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.7

AA616807, AA616807 vn68c05.r1 Barstead mouse irradiated colon... 180 1e-43  
 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.24  
 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.24  
 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.24  
 AA230758, AA230758 my32g10.r1 Barstead mouse pooled organs MP... 40 0.24  
 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.24  
 AA763419, AA763419 vw54a12.r1 Soares mouse mammary gland NMLM... 40 0.24  
 AA106439, AA106439 ml59a08.r1 Stratagene mouse testis (#93730... 40 0.24  
 AA250010, AA250010 mz59b12.r1 Soares mouse lymph node NbMLN M... 38 0.97  
 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.97  
 AA139459, AA139459 mq86a03.r1 Stratagene mouse melanoma (#937... 38 0.97  
 AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 36 3.8  
 AA692425, AA692425 vt59b05.r1 Barstead mouse irradiated colon... 36 3.8  
 AA049011, AA049011 mj48c09.r1 Soares mouse embryo NbME13.5 14... 36 3.8  
 AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 3.8  
 AI047077, AI047077 uh61g06.r1 Soares mouse embryonic stem cel... 36 3.8  
 AA103139, AA103139 mo17f05.r1 Life Tech mouse embryo 13 5dpc ... 36 3.8

AA840087, AA840087	uc99h12.r1 Soares mouse uterus NMPu Mus mu...	36	3.8
AA543280, AA543280	vj80h05.r1 Soares mouse mammary gland NbMM...	36	3.8
AA007762, AA007762	mg76b03.r1 Soares mouse embryo NbME13.5 14...	36	3.8
AA014223, AA014223	mh20a03.r1 Soares mouse placenta 4NbMP13.5...	36	3.8
AA591243, AA591243	vm18c04.r1 Knowles Solter mouse blastocyst...	36	3.8
AA921560, AA921560	vy52c06.r1 Stratagene mouse lung 937302 Mu...	36	3.8
W20935, W20935	mb96c07.r1 Soares mouse p3NMF19.5 Mus musculus...	36	3.8
AA793845, AA793845	vr35e12.r1 Barstead mouse myotubes MPLRB5 ...	36	3.8
AA856298, AA856298	vw99b01.r1 Soares 2NbMT Mus musculus cDNA ...	36	3.8
AA833479, AA833479	uc91c03.r1 Soares mouse uterus NMPu Mus mu...	36	3.8
AA218431, AA218431	my07e05.r1 Barstead mouse lung MPLRB2 Mus ...	36	3.8
AA089210, AA089210	mo05d10.r1 Stratagene mouse lung 937302 Mu...	36	3.8
AI047609, AI047609	uh63g07.r1 Soares mouse embryonic stem cel...	36	3.8
AA797372, AA797372	vw27b08.r1 Soares mouse mammary gland NbMM...	36	3.8
AA138067, AA138067	mq37c11.r1 Barstead MPLRB1 Mus musculus cD...	36	3.8
W83172, W83172	mf09a06.r1 Soares mouse p3NMF19.5 Mus musculus...	36	3.8
AA542324, AA542324	vk53e07.r1 Stratagene mouse Tcell 937311 M...	36	3.8
AA967316, AA967316	vj47a03.r1 Stratagene mouse skin (#937313)...	36	3.8
AI035925, AI035925	ub49e05.r1 Soares mouse mammary gland NbMM...	36	3.8
AA497479, AA497479	vh29b12.r1 Soares mouse mammary gland NbMM...	36	3.8
W87202, W87202	mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M...	36	3.8
AA016868, AA016868	mh36e12.r1 Soares mouse placenta 4NbMP13.5...	36	3.8
AA467482, AA467482	ve01a10.r1 Soares mouse NbMH Mus musculus ...	36	3.8
AA014768, AA014768	mi66h04.r1 Soares mouse embryo NbME13.5 14...	36	3.8
AA711859, AA711859	vu59c10.r1 Soares mouse mammary gland NbMM...	36	3.8
AA530735, AA530735	vj32g11.r1 Stratagene mouse diaphragm (#93...	36	3.8
AA009071, AA009071	mg87b11.r1 Soares mouse embryo NbME13.5 14...	36	3.8
AA711873, AA711873	vu28e06.r1 Barstead mouse myotubes MPLRB5 ...	36	3.8
AA645119, AA645119	vs72d03.r1 Stratagene mouse skin (#937313)...	36	3.8
AA106301, AA106301	ml81a09.r1 Stratagene mouse kidney (#93731...	36	3.8
AA111190, AA111190	mp66b11.r1 Soares 2NbMT Mus musculus cDNA ...	36	3.8
C87249, C87249	Mus musculus fertilized egg cDNA 3'-end seque...	36	3.8
AA796056, AA796056	vo65d01.r1 Soares mouse mammary gland NbMM...	36	3.8
AA230661, AA230661	mw15f08.r1 Soares mouse 3NME12 5 Mus muscu...	36	3.8
AA033481, AA033481	mi42b07.r1 Soares mouse embryo NbME13.5 14...	36	3.8
AA000268, AA000268	mg32e09.r1 Soares mouse embryo NbME13.5 14...	36	3.8
AI048515, AI048515	uh61e08.r1 Soares mouse embryonic stem cel...	36	3.8
W61547, W61547	md57a02.r1 Soares mouse embryo NbME13.5 14.5 M...	36	3.8
AA790448, AA790448	vw04f09.r1 Soares mouse mammary gland NbMM...	36	3.8
AA824205, AA824205	vy20g08.r1 Stratagene mouse macrophage (#9...	36	3.8
AA475425, AA475425	vh20g09.r1 Soares mouse mammary gland NbMM...	36	3.8
W62989, W62989	md88h12.r1 Soares mouse embryo NbME13.5 14.5 M...	36	3.8
W77724, W77724	me84h06.r1 Soares mouse embryo NbME13.5 14.5 M...	36	3.8
AA239210, AA239210	mx89e02.r1 Soares mouse NML Mus musculus c...	36	3.8

276X

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.055  
 AA891284, AA891284 EST195087 Normalized rat heart, Bento Soar... 40 0.22  
 Z83055, RNZ83055 R.norvegicus mRNA; expressed sequence tag; ... 40 0.22  
 AI010967, AI010967 EST205418 Normalized rat muscle, Bento Soa... 40 0.22  
 AA852049, AA852049 EST194818 Normalized rat spleen, Bento Soa... 40 0.22  


---

 H33489, H33489 EST109542 Rat PC-12 cells, NGF-treated (9 days... 40 0.22  
 AA799616, AA799616 EST189113 Normalized rat heart, Bento Soar... 40 0.22  
 Z83044, RNZ83044 R.norvegicus mRNA; expressed sequence tag; ... 40 0.22  
 AA660819, AA660819 00713 MtRHE Medicago truncatula cDNA 5' 38 0.86  
 AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.86  
 T00613, T00613 wEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.86  
 AA785775, AA785775 h4b05a1.fl Aspergillus nidulans 24hr asexu... 36 3.4  
 AA660859, AA660859 00754 MtRHE Medicago truncatula cDNA 5' si... 36 3.4  
 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.4  
 C68472, C68472 C.elegans cDNA clone yk305a12 : 5' end, singl... 36 3.4  
 AA800635, AA800635 EST190132 Normalized rat lung, Bento Soare... 36 3.4  
 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 3.4  
 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 3.4  
 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.4  
 AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.4  
 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.4  
 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 3.4  
 D45997, RICS10346A Rice cDNA, partial sequence (S10346\_1A). 36 3.4  
 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.4  
 AA800634, AA800634 EST190131 Normalized rat lung, Bento Soare... 36 3.4  
 D46069, RICS10475A Rice cDNA, partial sequence (S10475\_1A). 36 3.4

SEQ ID NO:552

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.38  
 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.38  
 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.38  
 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.5  
 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.5  
 U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.5

## HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0  
 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0

AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143  
 AA551799, AA551799 nk04a11.s1 NCI\_CGAP\_Co2 Homo sapiens cDNA ... 363 4e-98  
 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 4e-95  
 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90  
~~AA121198, AA121198 zl88g08.r1 Stratagene colon (#937204) Homo... 317 2e-84~~  
 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 2e-84  
 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.18  
 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.72  
 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. 40 0.72  
 AA877455, AA877455 ob33g01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.72  
 AA573297, AA573297 nk98d09.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.72  
 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.72  
 R02514, R02514 ye70b08.r1 Homo sapiens cDNA clone 123063 5'. 40 0.72  
 AA514777, AA514777 ni24b01.s1 NCI\_CGAP\_Co4 Homo sapiens cDNA ... 40 0.72  
 AA041240, AA041240 zf07g05.r1 Soares fetal heart NbHH19W Homo... 40 0.72  
 AA888147, AA888147 04h11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.72  
 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.72  
 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.8  
 N25839, N25839 yx22e05.r1 Homo sapiens cDNA clone 262496 5'. 38 2.8  
 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.8  
 N98472, N98472 yy65a04.r1 Homo sapiens cDNA clone 278382 5'. 38 2.8  
 AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 2.8  
 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.8  
 AA948291, AA948291 oq34d02.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 38 2.8

AA616807, AA616807 vn68c05.r1 Barstead mouse irradiated colon... 180 1e-43  
 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.26  
 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.26  
 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.26  
 AA230758, AA230758 my32g10.r1 Barstead mouse pooled organs MP... 40 0.26  
 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.26  
 AA106439, AA106439 ml59a08.r1 Stratagene mouse testis (#93730... 40 0.26  
 AA763419, AA763419 vw54a12.r1 Soares mouse mammary gland NMLM... 40 0.26  
 AA139459, AA139459 mq86a03.r1 Stratagene mouse melanoma (#937... 38 1.0  
 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 1.0  
 AA218431, AA218431 my07e05.r1 Barstead mouse lung MPLRB2 Mus ... 36 4.0  
 AI047077, AI047077 uh61g06.r1 Soares mouse embryonic stem cel... 36 4.0  
 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 4.0  
 AI035925, AI035925 ub49e05.r1 Soares mouse mammary gland NbMM... 36 4.0  
 AA111190, AA111190 mp66b11.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.0  
 AA645119, AA645119 vs72d03.r1 Stratagene mouse skin (#937313)... 36 4.0  
 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 4.0

AA000268, AA000268 mg32e09.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
AA793845, AA793845 vr35e12.r1 Barstead mouse myotubes MPLRB5 ... 36 4.0  
AA840087, AA840087 uc99h12.r1 Soares mouse uterus NMPu Mus mu... 36 4.0  
AA711873, AA711873 vu28e06.r1 Barstead mouse myotubes MPLRB5 ... 36 4.0  
AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA106301, AA106301 ml81a09.r1 Stratagene mouse kidney (#93731... 36 4.0  
AA543280, AA543280 vj80h05.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA007762, AA007762 mg76b03.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
AA921560, AA921560 vy52c06.r1 Stratagene mouse lung 937302 Mu... 36 4.0  
AA692425, AA692425 vt59b05.r1 Barstead mouse irradiated colon... 36 4.0  
AA833479, AA833479 uc91c03.r1 Soares mouse uterus NMPu Mus mu... 36 4.0  
AA824205, AA824205 vy20g08.r1 Stratagene mouse macrophage (#9... 36 4.0  
AA033481, AA033481 mi42b07.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
W61547, W61547 md57a02.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0  
AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA467482, AA467482 ve01a10.r1 Soares mouse NbMH Mus musculus ... 36 4.0  
AA239210, AA239210 mx89e02.r1 Soares mouse NML Mus musculus c... 36 4.0  
AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 4.0  
AA089210, AA089210 mo05d10.r1 Stratagene mouse lung 937302 Mu... 36 4.0  
W77724, W77724 me84h06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0  
AI048515, AI048515 uh61e08.r1 Soares mouse embryonic stem cel... 36 4.0  
AA009071, AA009071 mg87b11.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
AA475425, AA475425 vh20g09.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA230661, AA230661 mw15f08.r1 Soares mouse 3NME12 5 Mus muscu... 36 4.0  
AA138067, AA138067 mq37c11.r1 Barstead MPLRB1 Mus musculus cD... 36 4.0  
W83172, W83172 mf09a06.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.0  
AA797372, AA797372 vw27b08.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA711859, AA711859 vu59c10.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA967316, AA967316 vj47a03.r1 Stratagene mouse skin (#937313)... 36 4.0  
W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0  
AA103139, AA103139 mo17f05.r1 Life Tech mouse embryo 13 5dpc ... 36 4.0  
AA014223, AA014223 mh20a03.r1 Soares mouse placenta 4NbMP13.5... 36 4.0  
W62989, W62989 md88h12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0  
W20935, W20935 mb96c07.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.0  
AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA856298, AA856298 vw99b01.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.0  
AA014768, AA014768 mi66h04.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
AA497479, AA497479 vh29b12.r1 Soares mouse mammary gland NbMM... 36 4.0  
AA049011, AA049011 mj48c09.r1 Soares mouse embryo NbME13.5 14... 36 4.0  
AA016868, AA016868 mh36e12.r1 Soares mouse placenta 4NbMP13.5... 36 4.0  
AI047609, AI047609 uh63g07.r1 Soares mouse embryonic stem cel... 36 4.0  
AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 4.0

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.058  
T00613, T00613 wEST01334 *Caenorhabditis elegans* cDNA clone CE... 38 0.90  
AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.90  
AA660819, AA660819 00713 MtRHE *Medicago truncatula* cDNA 5' 38 0.90  
AA125602, AA125602 IM00M011 QM3 *Miracidia* Sjc 3/96 *Schistosom*... 36 3.6

---

Z33974, ATTS3035 *A. thaliana* transcribed sequence; clone PAP... 36 3.6  
C68472, C68472 *C.elegans* cDNA clone yk305a12 : 5' end, singl... 36 3.6  
AA785775, AA785775 h4b05a1.fl *Aspergillus nidulans* 24hr asexu... 36 3.6  
Z32602, ATTS2730 *A. thaliana* transcribed sequence; clone PAP... 36 3.6  
AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.6  
Z32603, ATTS2731 *A. thaliana* transcribed sequence; clone PAP... 36 3.6  
AA842765, AA842765 M-EST080 Sugarcane mature stalk *Saccharum* ... 36 3.6  
D45997, RICS10346A Rice cDNA, partial sequence (S10346\_1A). 36 3.6  
AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.6  
AA800634, AA800634 EST190131 Normalized rat lung, Bento Soare... 36 3.6  
AA660859, AA660859 00754 MtRHE *Medicago truncatula* cDNA 5' si... 36 3.6  
AA800635, AA800635 EST190132 Normalized rat lung, Bento Soare... 36 3.6  
D46069, RICS10475A Rice cDNA, partial sequence (S10475\_1A). 36 3.6  
H32878, H32878 EST108396 Rat PC-12 cells, untreated *Rattus* sp... 36 3.6

SEQ ID NO:553

Z99297, HS262D12 *Homo sapiens* DNA sequence from PAC 262D12 o... 1963 0.0  
Z81540, CEF46B3 *Caenorhabditis elegans* cosmid F46B3, complet... 40 0.89  
U67488, U67488 *Methanococcus jannaschii* section 30 of 150 of ... 38 3.5  
AE000786, AE000786 *Borrelia burgdorferi* plasmid lp28-2, compl... 38 3.5  
L02053, OMMGSHT1 *Ommastrephes sloani* glutathione transferase... 38 3.5  
AC004521, ATAC004521 *Arabidopsis thaliana* chromosome II BAC F... 38 3.5  
L41250, DROGPDHN *Drosophila nebulosa* glycerol-3-phosphate deh... 38 3.5  
AE000619, HPAE000619 *Helicobacter pylori* section 97 of 134 of... 38 3.5  
U39720, *Mycoplasma genitalium* ackA, licA, mucB, rpL10, rpL32... 38 3.5  
AC004533, HUAC004533 *Homo sapiens* Chromosome 16 BAC clone CIT... 38 3.5  
U62292, HSU62292 Human elastin (ELN) gene, partial cds 38 3.5

#### HUMAN ESTs

W02630, W02630 za52c02.r1 Soares fetal liver spleen 1NFLS Hom... 1009 0.0  
AA557183, AA557183 nl74f12.s1 NCI\_CGAP\_Br2 *Homo sapiens* cDNA ... 874 0.0  
AA761171, AA761171 nz09e11.s1 NCI\_CGAP\_GCB1 *Homo sapiens* cDNA... 866 0.0  
AA976975, AA976975 oq26g11.s1 NCI\_CGAP\_GC4 *Homo sapiens* cDNA ... 854 0.0  
AA449515, AA449515 zx06b11.r1 Soares total fetus Nb2HF8 9w Ho... 848 0.0



AA678392, AA678392 zi26h10.s1 Soares fetal liver spleen 1NFLS... 848 0.0  
AA909198, AA909198 ol12d06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 831 0.0  
W79208, W79208 zd79g05.r1 Soares fetal heart NbHH19W Homo sap... 813 0.0  
W03125, W03125 za53c02.r1 Soares fetal liver spleen 1NFLS Hom... 807 0.0  
W94750, W94750 ze13h08.r1 Soares fetal heart NbHH19W Homo sap... 785 0.0

---

AA354894, AA354894 EST63217 Jurkat T-cells V Homo sapiens cDN... 771 0.0  
H70075, H70075 yr92b03.r1 Homo sapiens cDNA clone 212717 5'. 745 0.0  
W77859, W77859 zd70b08.r1 Soares fetal heart NbHH19W Homo sap... 728 0.0  
AA425424, AA425424 zw48f03.s1 Soares total fetus Nb2HF8 9w Ho... 718 0.0  
AA476893, AA476893 zu29f09.r1 Soares ovary tumor NbHOT Homo s... 688 0.0  
AA456676, AA456676 aa01h02.s1 Soares NhHMPu S1 Homo sapiens c... 688 0.0  
AA662309, AA662309 nu97c11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 668 0.0  
W72135, W72135 zd70b08.s1 Soares fetal heart NbHH19W Homo sap... 650 0.0  
N74362, N74362 za52c02.s1 Homo sapiens cDNA clone 296162 3'. 622 e-176  
N66917, N66917 za47d09.s1 Homo sapiens cDNA clone 295697 3'. 585 e-165  
AA251287, AA251287 zs04c06.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 583 e-164  
AA971082, AA971082 op70h01.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 567 e-160  
W78165, W78165 zd79g05.s1 Soares fetal heart NbHH19W Homo sap... 565 e-159  
AA253290, AA253290 zr71g03.r1 Soares NhHMPu S1 Homo sapiens c... 559 e-157  
AA729063, AA729063 nw22f08.s1 NCI\_CGAP\_GCB0 Homo sapiens cDNA... 557 e-157  
AA987313, AA987313 or81h06.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 553 e-155  
AA300954, AA300954 EST13832 Testis tumor Homo sapiens cDNA 5'... 541 e-152  
AA425594, AA425594 zw48f03.r1 Soares total fetus Nb2HF8 9w Ho... 529 e-148  
N24014, N24014 yx87g10.s1 Homo sapiens cDNA clone 268770 3'. 523 e-146  
AA947355, AA947355 od86e12.s1 NCI\_CGAP\_Ov2 Homo sapiens cDNA ... 504 e-140  
AA121074, AA121074 zl88b06.s1 Stratagene colon (#937204) Homo... 460 e-127  
AA742964, AA742964 ny15d01.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 454 e-126  
AA306814, AA306814 EST177885 Colon carcinoma (HCC) cell line ... 452 e-125  
W87699, W87699 zh65b11.r1 Soares fetal liver spleen 1NFLS S1 ... 446 e-123  
W87700, W87700 zh65b11.s1 Soares fetal liver spleen 1NFLS S1 ... 438 e-121  
AA449084, AA449084 zx06b11.s1 Soares total fetus Nb2HF8 9w Ho... 398 e-109  
N99231, N99231 zb76f11.s1 Soares senescent fibroblasts NbHSF ... 391 e-106  
N49900, N49900 yv24d04.s1 Homo sapiens cDNA clone 243655 3'. 383 e-104  
AA782911, AA782911 ai62a10.s1 Soares testis NHT Homo sapiens ... 365 6e-99  
AA936553, AA936553 on23g11.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 361 9e-98  
N74414, N74414 za53c02.s1 Homo sapiens cDNA clone 296258 3'. 353 2e-95  
AA834628, AA834628 od98a10.s1 NCI\_CGAP\_Ov2 Homo sapiens cDNA ... 341 8e-92  
AA693756, AA693756 zi55f11.s1 Soares fetal liver spleen 1NFLS... 341 8e-92  
AA909616, AA909616 ol09d06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 341 8e-92  
H69662, H69662 yr92b03.s1 Homo sapiens cDNA clone 212717 3'. 321 8e-86  
AA249558, AA249558 jj7521.seq.F Human fetal heart, Lambda ZAP... 317 1e-84  
AA911960, AA911960 oh88g08.s1 NCI\_CGAP\_Co8 Homo sapiens cDNA ... 317 1e-84  
AA969099, AA969099 op55e06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 303 2e-80  
AA766191, AA766191 oa12g08.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 212 5e-53  
AA689312, AA689312 nx05e10.s1 NCI\_CGAP\_GC3 Homo sapiens cDNA ... 200 2e-49

AA418586, AA418586 zv93e05.r1 Soares NhHMPu S1 Homo sapiens c... 182 5e-44  
 AA418570, AA418570 zv93e05.s1 Soares NhHMPu S1 Homo sapiens c... 182 5e-44  
 AA534939, AA534939 nf82f03.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 167 3e-39  
 AA888430, AA888430 nw74e05.s1 NCI\_CGAP\_Pr12 Homo sapiens cDNA... 167 3e-39  
 N50003, N50003 yv24d04.r1 Homo sapiens cDNA clone 243655 5' s... 149 6e-34  


---

 AA535102, AA535102 nr84f06.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 135 1e-29  
 AA262335, AA262335 zr71g03.s1 Soares NhHMPu S1 Homo sapiens c... 129 6e-28  
 AA766681, AA766681 oa34c05.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 105 9e-21  
 AA761492, AA761492 nz27a05.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 101 1e-19  
 AA688350, AA688350 nv15a05.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 90 5e-16  
 AA347041, AA347041 EST53285 Fetal heart II Homo sapiens cDNA ... 76 8e-12  
 T94395, T94395 ye35e02.s1 Homo sapiens cDNA clone 119738 3'. 46 0.007  
 AA833565, AA833565 aj46a02.s1 Soares testis NHT Homo sapiens ... 46 0.007  
 AA095460, AA095460 l4630.seq.F Fetal heart, Lambda ZAP Expres... 40 0.43  
 AA904415, AA904415 ok07e06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 40 0.43  
 AI018800, AI018800 ov32h04.x1 Soares\_testis\_NHT Homo sapiens ... 38 1.7  
 AA631083, AA631083 nq77e07.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 1.7

AA399772, AA399772 vd70g05.r1 Beddington mouse embryonic regi... 347 5e-94  
 AA467106, AA467106 vd98b04.r1 Soares mouse NbMH Mus musculus ... 309 1e-82  
 AI046844, AI046844 uh55c11.r1 Soares mouse embryonic stem cel... 208 3e-52  
 AA475075, AA475075 vh11g05.r1 Soares mouse mammary gland NbMM... 194 4e-48  
 AA646094, AA646094 vs31e06.r1 Stratagene mouse Tcell 937311 M... 186 1e-45  
 AA390020, AA390020 vb30e07.r1 Soares mouse lymph node NbMLN M... 170 6e-41  
 AA245553, AA245553 my52g04.r1 Barstead mouse pooled organs MP... 170 6e-41  
 AA930741, AA930741 vs57b02.r1 Stratagene mouse skin (#937313)... 155 4e-36  
 W62610, W62610 md58c06.r1 Soares mouse embryo NbME13.5 14.5 M... 117 8e-25  
 AA239270, AA239270 my40e01.r1 Barstead mouse pooled organs MP... 109 2e-22  
 AA015148, AA015148 mh16e01.r1 Soares mouse placenta 4NbMP13.5... 54 1e-05  
 AA764095, AA764095 vw09h02.r1 Soares 2NbMT Mus musculus cDNA ... 38 0.61  
 AA238570, AA238570 my35h02.r1 Barstead mouse pooled organs MP... 38 0.61  
 AA600576, AA600576 vm75f08.r1 Knowles Solter mouse blastocyst... 38 0.61  
 AA636273, AA636273 vq76a10.s1 Knowles Solter mouse 2 cell Mus... 36 2.4  
 AA051407, AA051407 mj41f08.r1 Soares mouse embryo NbME13.5 14... 36 2.4  
 AA823136, AA823136 vw41b03.r1 Soares mouse mammary gland NbMM... 36 2.4  
 W83831, W83831 mf26a06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.4  
 D77944, MUSC0D06 Mouse embryonal carcinoma F9 cell cDNA, C0D06 36 2.4  
 AA915408, AA915408 vz29h04.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.4  
 AI047229, AI047229 uh63a09.r1 Soares mouse embryonic stem cel... 36 2.4  
 AA271880, AA271880 va73d01.r1 Soares mouse 3NME12 5 Mus muscu... 36 2.4  
 AA475165, AA475165 vg95f01.r1 Barstead mouse pooled organs MP... 36 2.4  
 AA619774, AA619774 vl58a05.s1 Knowles Solter mouse 2 cell Mus... 36 2.4

AA673116, AA673116 vn49g11.r1 Barstead mouse myotubes MPLRB5 ... 36 2.4  
 AA870623, AA870623 vq24a07.r1 Barstead stromal cell line MPLR... 36 2.4  
 W58907, W58907 md52f12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.4  
 AA690593, AA690593 vu53d05.r1 Soares mouse mammary gland NbMM... 36 2.4  
 AA754801, AA754801 vu21f03.r1 Barstead mouse myotubes MPLRB5 ... 36 2.4  
 AA271607, AA271607 va72a12.r1 Soares mouse 3NME12 5 Mus muscu... 36 2.4  
 AA064256, AA064256 mj66a03.r1 Soares mouse p3NMF19.5 Mus musc... 36 2.4  
 AA475144, AA475144 vg95d01.r1 Barstead mouse pooled organs MP... 36 2.4  
 AA197736, AA197736 mv02g08.r1 GuayWoodford Beier mouse kidney... 36 2.4

AA817944, AA817944 UI-R-A0-ag-e-01-0-UI.s1 UI-R-A0 Rattus nor... 40 0.14  
 F14714, SSC8B01 S.scrofa mRNA; expressed sequence tag (5'; c... 38 0.54  
 H91505, H91505 SWMFCA089SK Brugia malayi microfilaria cDNA (S... 36 2.1  
 AA998610, AA998610 UI-R-C0-if-c-04-0-UI.s1 UI-R-C0 Rattus nor... 36 2.1  
 AA893562, AA893562 EST197365 Normalized rat liver, Bento Soar... 36 2.1  
 AI008397, AI008397 EST202848 Normalized rat embryo, Bento Soa... 36 2.1

SEQ ID NO:554

Z92544, HS313D11 Human DNA sequence from cosmid 313D11 from ... 700 0.0  
 Z46940, HSPRMTNP2 H.sapiens PRM1 gene, PRM2 gene and TNP2 gene 44 0.048  
 U85039, TMU85039 Theileria mutans 32 kDa immunodominant pirop... 42 0.19  
 U85251, TMU85251 Theileria mutans 32 kDa immunodominant pirop... 42 0.19  
 AF003630, AF003630 Theileria mutans clone 15, 32 kDa immunodo... 42 0.19  
 AF003629, AF003629 Theileria mutans clone 9, 32 kDa immunodom... 42 0.19  
 AB007884, AB007884 Homo sapiens KIAA0424 mRNA, partial cds 42 0.19  
 U85040, TMU85040 Theileria mutans 32 kDa immunodominant pirop... 42 0.19  
 Z97343, ATFCA8 Arabidopsis thaliana DNA chromosome 4, ESSA I... 40 0.75  
 L19655, TOSRNA1X Tomato ringspot virus polyprotein (RNA-1) ge... 40 0.75  
 M73822, TOSRNA1A Tomato ringspot virus RNA1 gene, 5' end. 40 0.75  
 L02543, BOVMTNNT Bos taurus nicotinamide nucleotide transhydr... 40 0.75  
 J03534, BOVNAD Bovine mitochondrial nicotinamide nucleotide t... 40 0.75  
 M62862, TRBRTE Trypanosoma cruzi retrotransposon encoding gag... 40 0.75  
 X72711, MMREPCFC M.musculus mRNA for replication factor C, l... 38 3.0  
 M88489, MUSNBP Mus musculus nonamer binding protein mRNA, com... 38 3.0  
 U36441, MMU36441 Mus musculus differentiation specific elemen... 38 3.0  
 AB002354, AB002354 Human mRNA for KIAA0356 gene, complete cds 38 3.0  
 J03149, CATFMSC Cat (F.domesticus) c-fms proto-oncogene mRNA ... 38 3.0  
 J05475, CHKVICOLL Chicken type VI collagen alpha 2 (VI) subun... 38 3.0

AF038163, AF038163 Homo sapiens interleukin-15 (IL-15) gene, ... 38 3.0  
 X75917, HSFBMBF H.sapiens mRNA for fetal beta-MHC binding fa... 38 3.0  
 X06542, DMHSPG3 Drosophila heat shock gene 3 from 67B locus 38 3.0  
 D17315, DRODAGK Fruit fly mRNA for diacylglycerol kinase, co... 38 3.0  
 Z58600, HS45E3F H.sapiens CpG DNA, clone 45e3, forward read ... 38 3.0  


---

~~D78638, D78638 Xenopus laevis mRNA for DNA (cytosine-5-)-met...~~ 38 3.0  
 Z49204, MMNADPTRH M.musculus mRNA for NADP transhydrogenase. 38 3.0  
 L10425, BPEMETC Bordetella avium beta-cystathionase-lyase (me... 38 3.0  
 U01222, U01222 Mus musculus activator 1 large subunit (A1-p14... 38 3.0  
 U15037, MMU15037 Mus musculus replication factor C large subu... 38 3.0  
 K01643, FCSSMONC Feline sarcoma virus (McDonough strain) tran... 38 3.0  
 Z57538, HS183C6F H.sapiens CpG DNA, clone 183c6, forward rea... 38 3.0  
 U07157, MMU07157 Mus musculus ISRE-binding protein (IBF-1) mR... 38 3.0  
 Z64961, HS183F7R H.sapiens CpG DNA, clone 183f7, reverse rea... 38 3.0

## HUMAN ESTs

## SEQ ID NO:555

AF039693, AF039693 Homo sapiens unknown protein mRNA, complet... 916 0.0  
 S51239, S51239 calreticulin [Aplysia californica=marine snail... 48 0.005  
 Z74035, CEF47G9 Caenorhabditis elegans cosmid F47G9, complet... 46 0.019  
 AF022814, AF022814 Fugu rubripes transcription factor (SLP-1)... 44 0.073  
 X82638, CSCYTOX C.sordellii cytotoxin gene 42 0.29  
 U63063, SCU63063 Saccharomyces cerevisiae something about sil... 42 0.29  
 X63501, SCRPC53 S.cerevisiae RPC53 gene for RNA polymerase C... 42 0.29  
 U67572, U67572 Methanococcus jannaschii section 114 of 150 of... 42 0.29  
 Z74201, SCYDL153C S.cerevisiae chromosome IV reading frame O... 42 0.29  
 U66032, MTU66032 Methanosarcina thermophila CO dehydrogenase/... 42 0.29  
 Z95620, SPBC3D6 S.pombe chromosome II cosmid c3D6 42 0.29  
 X97751, SCIV23 S.cerevisiae chrIV genes STE7, CLB3, MSH5, RP... 42 0.29  
 X65541, ATCAN A.thaliana mRNA for carbonic anhydrase 42 0.29  
 L14750, ATHCARANHY Arabidopsis thaliana carbonic anhydrase ge... 42 0.29  
 U00995, U00995 Rattus norvegicus TA1 mRNA, complete cds. 40 1.1  
 S73876, S73876 FPR3=FKBP-70 [Saccharomyces cerevisiae, Genomi... 40 1.1  
 U12825, SCU12825 Saccharomyces cerevisiae transcription facto... 40 1.1  
 Z74237, SCYDL189W S.cerevisiae chromosome IV reading frame O... 40 1.1  
 U76906, REU76906 Rhizobium etli FixK (fixK), FixN (fixN), mon... 40 1.1

---

AF050157, MMHC135G15	Mus musculus major histocompatibility lo...	40	1.1
X58857, SCPPH22	S.cerevisiae PPH22 gene for protein phosphat...	40	1.1
X79379, SCPROIS	S.cerevisiae gene for proline isomerase	40	1.1
Z68341, CEF01G4	Caenorhabditis elegans cosmid F01G4, complet...	40	1.1
M17192, MUSHOX1	Mouse homeodomain protein (Hox1.1) mRNA, comp...	40	1.1
<del>U50307, CELF43H9</del>	<del>Caenorhabditis elegans cosmid F43H9.</del>	<del>40</del>	<del>1.1</del>
S73144, S73144	bone sialoprotein [cattle, fetal bone cells, m...	40	1.1
L34569, YSCFPR3A	Saccharomyces cerevisiae (clone pBYNG1) prol...	40	1.1
D78303, D78303	Rattus norvegicus YT521 mRNA for RNA splicing...	40	1.1
X83276, SCDNAIV	S.cerevisiae DNA for ORFs from chromosome IV	40	1.1
U54558, HSU54558	Human translation initiation factor eIF3 p66...	40	1.1
Z50109, CEC09H10	Caenorhabditis elegans cosmid C09H10, compl...	40	1.1
X56983, EAVATP1	E.arvense gene for catalytic 70kDa V-ATPase ...	40	1.1
AB011125, AB011125	Homo sapiens mRNA for KIAA0553 protein, p...	40	1.1
Z46373, SC8248	S.cerevisiae chromosome XIII cosmid 8248	40	1.1
AF039042, CELZK697	Caenorhabditis elegans cosmid ZK697	40	1.1
Z28028, SCYKL028W	S.cerevisiae chromosome XI reading frame O...	40	1.1
AC005266, AC005266	Homo sapiens chromosome 19, cosmid F23465,...	38	4.5
U60822, HSU60822	Human dystrophin (DMD) gene, exons 7, 8 and ...	38	4.5
AJ003141, HVAJ3141	Hordeum vulgare mRNA for stress-related p...	38	4.5
M26250, CRAGAP43	Goldfish (C.auratus) growth-associated prote...	38	4.5
X95267, GGRYR3	G.gallus mRNA for ryanodine receptor type 3	38	4.5
L37092, MUSCDPK	Mus musculus cyclin-dependent kinase homology...	38	4.5
Z72507, CEF17C11	Caenorhabditis elegans cosmid F17C11, compl...	38	4.5
U29608, DMU29608	Drosophila melanogaster large tumor suppress...	38	4.5
Z49072, CET24A11	Caenorhabditis elegans cosmid T24A11, compl...	38	4.5
M83142, RATBGASTR	Rattus norvegicus beta-galactoside-alpha 2,...	38	4.5
Z20656, HSCAMHCA	Homo sapiens of cardiac alpha-myosin heavy ...	38	4.5
M82937, YSACS2A	Candida albicans chitin synthase 2 (CHS2) gen...	38	4.5
U28888, MMU28888	Mus musculus neurogenic differentiation fact...	38	4.5
S66408, S66408	c-erbB=proto-oncogene {exon 1, promoter} [chic...	38	4.5
AC002396, AC002396	Arabidopsis thaliana chromosome I BAC F316...	38	4.5
AE000665, MMAE000665	Mus musculus TCR beta locus from bases 5...	38	4.5
L39837, DROWARTS	Drosophila melanogaster tumor suppressor (war...	38	4.5
AG000377, AG000377	Homo sapiens genomic DNA, 21q region, clo...	38	4.5
X05632, HSMHCAG1	Human alpha-MHC gene for myosin heavy chain...	38	4.5
AC002108, AC002108	Genomic sequence from Mouse 4, complete se...	38	4.5
U37219, HSU37219	Human cyclophilin-like protein CyP-60 mRNA, ...	38	4.5
M58633, MUSP58GTA	Mouse p58/GTA protein kinase mRNA, complete...	38	4.5
M25162, HUMMYHC08	Human cardiac alpha-myosin heavy chain (MYH...	38	4.5
Z46259, SCRPD3COS	S.cerevisiae FY1676 RPD3 gene.	38	4.5
U09558, LJU09558	Lactobacillus johnsonii ATCC 11506 insertion...	38	4.5
U66160, MMUSC104	Mus musculus extracellular matrix associated...	38	4.5
Z73126, SCYLL021W	S.cerevisiae chromosome XII reading frame ...	38	4.5
U83981, HSU83981	Homo sapiens apoptosis associated protein (G...	38	4.5

U59897, MRU59897	Macropus robustus hypoxanthine phosphoribosy...	38 4.5
D38256, YSCSCT1	Yeast gene for suppressor of ctr mutation	38 4.5
X69838, HSG9A	H.sapiens mRNA for G9a	38 4.5
X52952, RNCMOSO	Rat mRNA for c-mos	38 4.5
U37221, HSU37221	Human cyclophilin-like protein mRNA, partial...	38 4.5
X65880, DPRH4OP1	D.pseudoobscura rh4 opsin gene, exon 1	38 4.5
U58971, NTU58971	Nicotiana tabacum calmodulin-binding protein...	38 4.5
Z35773, SCYBL012C	S.cerevisiae chromosome II reading frame O...	38 4.5
X67668, MMHMG2	M.musculus mRNA for high mobility group 2 pro...	38 4.5
L81727, HSL81727	Homo sapiens (subclone 1_d5 from P1 H69) DNA...	38 4.5
AL023800, HS833B2	Human DNA sequence *** SEQUENCING IN PROGR...	38 4.5
X62438, HVPERO	H.vulgare mRNA for peroxidase	38 4.5
AC004096, AC004096	Mouse Cosmid ma66a100 from 14D1-D2, comple...	38 4.5
AL008980, PFSC03050	Plasmodium falciparum DNA *** SEQUENCING...	38 4.5
U64827, MMU64827	Mus musculus extracellular matrix associated...	38 4.5
AC003010, HUAC003010	Homo sapiens Chromosome 16 BAC clone CIT...	38 4.5
AE001002, AE001002	Archaeoglobus fulgidus section 105 of 172 ...	38 4.5
U86662, LEU86662	Lycopersicon esculentum VPS41 (tVPS41) mRNA,...	38 4.5
M20386, CHKEGFR	Chicken epidermal growth factor receptor (CER...	38 4.5
M77637, CHKEGF	Gallus gallus EGF/TGF-alpha receptor (c-erbB) ...	38 4.5
U08185, MMU08185	Mus musculus BALB/c zinc-finger protein Blim...	38 4.5
AC004231, AC004231	Homo sapiens chromosome 17, clone hRPC.111...	38 4.5
Z50100, HVC39SAT	H.vulgare GAA-satellite DNA	38 4.5
X53731, SCSPA2G	S. cerevisiae SPA2 gene	38 4.5
U37220, HSU37220	Human cyclophilin-like protein mRNA, partial...	38 4.5
X97560, SC32KBF	S.cerevisiae 32kb DNA fragment of chromosome...	38 4.5
AB011479, AB011479	Arabidopsis thaliana genomic DNA, chromos...	38 4.5
U89340, LVU89340	Lytechinus variegatus Endo16 homolog (LvEndo1...	38 4.5
U73850, TCU73850	Trypanosoma cruzi 29 kDa proteasome subunit ...	38 4.5
AB006698, AB006698	Arabidopsis thaliana genomic DNA, chromos...	38 4.5
D37888, CYIMYC2	Cyprinus carpio c-myc gene for c-Myc, comple...	38 4.5
AF017349, MMDSGIII	7 Mus musculus desmoglein 3 (Dsg3) gene, i...	38 4.5
X91807, OSTA136	O.sativa mRNA for alpha-tubulin (clone OSTA-...	38 4.5
Z71587, SCYNL311C	S.cerevisiae chromosome XIV reading frame ...	38 4.5
AE000742, AE000742	Aquifex aeolicus section 74 of 109 of the ...	38 4.5

## HUMAN ESTs

AA324311, AA324311	EST27136 Cerebellum II Homo sapiens cDNA 5...	593 e-167
AA639190, AA639190	ns04a01.r1 NCI_CGAP_Ew1 Homo sapiens cDNA ...	513 e-143
AA172199, AA172199	zo96a06.r1 Stratagene ovarian cancer (#937...	505 e-141
AA588066, AA588066	nk10d08.s1 NCI_CGAP_Co2 Homo sapiens cDNA ...	502 e-140
AA412036, AA412036	zt68d09.s1 Soares testis NHT Homo sapiens ...	502 e-140
AA508745, AA508745	ni23a03.s1 NCI_CGAP_Co4 Homo sapiens cDNA ...	502 e-140

AA480337, AA480337 ne33a03.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 502 e-140  
 AA902270, AA902270 ok69e04.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 502 e-140  
 AA947303, AA947303 ok20d04.s1 Soares\_NSF\_F8\_9W\_OT\_PA\_P\_S1 Hom... 502 e-140  
 R23642, R23642 yh35e03.r1 Homo sapiens cDNA clone 131740 5'. 490 e-136  
 AA811913, AA811913 ob51d06.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 464 e-128  
 AA172083, AA172083 zo96a06.s1 Stratagene ovarian cancer (#937... 464 e-128  
 AA725458, AA725458 ai16g01.s1 Soares parathyroid tumor NbHPA ... 400 e-109  
 R26558, R26558 yh35e02.s1 Homo sapiens cDNA clone 131738 3'. 359 5e-97  
 AA402403, AA402403 zt68d09.r1 Soares testis NHT Homo sapiens ... 315 6e-84  
 R58372, R58372 G3243 Fetal heart Homo sapiens cDNA clone G324... 262 8e-68  
 AA389703, AA389703 M421 Fetal heart, Lambda ZAP Express Homo ... 202 6e-50  
 W25749, W25749 11b4 Human retina cDNA randomly primed sublibr... 103 4e-20  
 W27158, W27158 22h9 Human retina cDNA randomly primed sublibr... 66 1e-08  
 T65784, T65784 yc11f10.s1 Homo sapiens cDNA clone 80395 3' si... 42 0.14  
 AA179601, AA179601 zp49f10.r1 Stratagene HeLa cell s3 937216 ... 42 0.14  
 AA928679, AA928679 on48e08.s1 NCI\_CGAP\_Co8 Homo sapiens cDNA ... 40 0.55  
 AA887972, AA887972 nq95g11.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.55  
 W46946, W46946 zc40c05.s1 Soares senescent fibroblasts NbHSF ... 40 0.55  
 AA887862, AA887862 nq99b08.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 40 0.55  
 AA554819, AA554819 ni34d08.s1 NCI\_CGAP\_Lu1 Homo sapiens cDNA ... 40 0.55  
 AA557362, AA557362 nl81d12.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.55  
 AA252258, AA252258 zr29e04.s1 Stratagene NT2 neuronal precurs... 40 0.55  
 N34310, N34310 yy52b10.s1 Homo sapiens cDNA clone 277147 3' s... 40 0.55  
 AA552228, AA552228 nk06b04.s1 NCI\_CGAP\_Co2 Homo sapiens cDNA ... 40 0.55  
 AI017648, AI017648 ou99b02.x1 NCI\_CGAP\_Kid3 Homo sapiens cDNA... 40 0.55  
 T17395, T17395 NIB846 Normalized infant brain, Bento Soares H... 40 0.55  
 AA219659, AA219659 zr05e10.s1 Stratagene NT2 neuronal precurs... 40 0.55  
 AA463841, AA463841 zx67f06.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.55  
 N66817, N66817 za09b11.s1 Homo sapiens cDNA clone 292029 3' s... 40 0.55  
 AA167358, AA167358 zp06f12.s1 Stratagene ovarian cancer (#937... 40 0.55  
 AA063505, AA063505 zf70d02.r1 Soares pineal gland N3HPG Homo ... 40 0.55  
 AA731625, AA731625 nw64a04.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.55  
 AA100119, AA100119 zl80g04.s1 Stratagene colon (#937204) Homo... 40 0.55  
 AA181572, AA181572 zp51d04.s1 Stratagene HeLa cell s3 937216 ... 40 0.55  
 AA327182, AA327182 EST30459 Colon I Homo sapiens cDNA 5' end ... 40 0.55  
 R48608, R48608 yj65f07.s1 Homo sapiens cDNA clone 153637 3' s... 40 0.55  
 AA678485, AA678485 ah06e04.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
 AA082353, AA082353 zn38c11.r1 Stratagene endothelial cell 937... 40 0.55  
 AA633213, AA633213 nq57c06.s1 NCI\_CGAP\_Co9 Homo sapiens cDNA ... 40 0.55  
 W38410, W38410 zc77g09.s1 Pancreatic Islet Homo sapiens cDNA ... 40 0.55  
 AA345893, AA345893 EST51967 Gall bladder I Homo sapiens cDNA ... 40 0.55  
 N26876, N26876 yx97f06.s1 Homo sapiens cDNA clone 269699 3' s... 40 0.55  
 N95279, N95279 zb60c09.s1 Soares fetal lung NbHL19W Homo sapi... 40 0.55  
 AI041637, AI041637 ox92h08.x1 Soares\_senescent\_fibroblasts\_Nb... 40 0.55  
 N67830, N67830 za05d12.s1 Homo sapiens cDNA clone 291671 3' s... 40 0.55

AA535094, AA535094 nf84e06.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.55  
AA514414, AA514414 nf57d11.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.55  
T56802, T56802 ya71h07.s2 Homo sapiens cDNA clone 67165 3' co... 40 0.55  
N68147, N68147 yz55f12.s1 Homo sapiens cDNA clone 286991 3' s... 40 0.55  
AA535811, AA535811 nf93g10.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.55  
AA115591, AA115591 zl05g09.s1 Soares pregnant uterus NbHPU Ho... 40 0.55  
N75851, N75851 za96g11.s1 Homo sapiens cDNA clone 300452 3'. 40 0.55  
AA534433, AA534433 nf80a08.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.55  
H99778, H99778 yx36g01.s1 Homo sapiens cDNA clone 263856 3' s... 40 0.55  
AA970859, AA970859 oo81h03.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 40 0.55  
F02131, HSC0PF092 H. sapiens partial cDNA sequence; clone c-... 40 0.55  
AA810279, AA810279 od14g11.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.55  
AA595146, AA595146 nl84b01.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.55  
AA632386, AA632386 np67e06.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.55  
AA135124, AA135124 zo24c04.s1 Stratagene colon (#937204) Homo... 40 0.55  
AA143500, AA143500 zo31b10.s1 Stratagene colon (#937204) Homo... 40 0.55  
AA854992, AA854992 aj53g12.s1 Soares testis NHT Homo sapiens ... 40 0.55  
AA156872, AA156872 zl20h07.s1 Soares pregnant uterus NbHPU Ho... 40 0.55  
AA160994, AA160994 zq41c12.s1 Stratagene hNT neuron (#937233)... 40 0.55  
AA961724, AA961724 or60a10.s1 NCI\_CGAP\_GC3 Homo sapiens cDNA ... 40 0.55  
AA551210, AA551210 nj27e09.s1 NCI\_CGAP\_AA1 Homo sapiens cDNA ... 40 0.55  
R44103, R44103 yg27c10.s1 Homo sapiens cDNA clone 33636 3'. 40 0.55  
AA938086, AA938086 oj08h08.s1 NCI\_CGAP\_Mel3 Homo sapiens cDNA... 40 0.55  
AA576021, AA576021 nm57d11.s1 NCI\_CGAP\_Br3 Homo sapiens cDNA ... 40 0.55  
AA722725, AA722725 zg86b09.s1 Soares fetal heart NbHH19W Homo... 40 0.55  
AA678948, AA678948 ah08h11.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
W07435, W07435 za96g11.r1 Soares fetal lung NbHL19W Homo sapi... 40 0.55  
T34639, T34639 EST72167 Homo sapiens cDNA 5' end similar to s... 40 0.55  
AA632245, AA632245 np67b09.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 40 0.55  
R98701, R98701 yr31f08.s1 Homo sapiens cDNA clone 206919 3'. 40 0.55  
R76418, R76418 yi58a10.s1 Homo sapiens cDNA clone 143418 3'. 40 0.55  
AI028447, AI028447 ow08b09.x1 Soares parathyroid tumor NbHPA ... 40 0.55  
AI002929, AI002929 an15e12.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
AA779388, AA779388 ae26a03.s1 Soares NbHFB Homo sapiens cDNA ... 40 0.55  
AA776220, AA776220 ah10f02.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
AA815223, AA815223 oc05c04.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.55  
W60807, W60807 zd27b08.s1 Soares fetal heart NbHH19W Homo sap... 40 0.55  
AA666007, AA666007 ag71g01.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
AA643849, AA643849 np26f07.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 40 0.55  
AA846740, AA846740 aj99b12.s1 Soares parathyroid tumor NbHPA ... 40 0.55  
AA598498, AA598498 ae38h01.s1 Gessler Wilms tumor Homo sapien... 40 0.55  
AA535972, AA535972 nf95a01.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 40 0.55  
AA488544, AA488544 ab37g06.r1 Stratagene HeLa cell s3 937216 ... 40 0.55  
AA866044, AA866044 oh52g07.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 40 0.55  
C14370, C14370 Human fetal brain cDNA 5'-end GEN-050F01 40 0.55



AA237204, AA237204 mx18d02.r1 Soares mouse NML Mus musculus c... 167 1e-39  
 AA563402, AA563402 vl75d08.r1 Knowles Solter mouse blastocyst... 38 0.78  


---

 AA413261, AA413261 ve52f04.r1 Beddington mouse embryonic regi... 38 0.78  
 AA097645, AA097645 mm36f09.r1 Stratagene mouse skin (#937313)... 38 0.78  
 AA122578, AA122578 mn25b08.r1 Beddington mouse embryonic regi... 38 0.78  
 AA122581, AA122581 mn25c08.r1 Beddington mouse embryonic regi... 38 0.78  
 AA646168, AA646168 vn11e06.r1 Stratagene mouse Tcell 937311 M... 36 3.1  
 AA200881, AA200881 mu03c09.r1 Soares mouse 3NbMS Mus musculus... 36 3.1  
 AI048938, AI048938 uc84h06.y1 Sugano mouse kidney mkia Mus mu... 36 3.1  
 AA217675, AA217675 mv01b09.r1 Soares mouse lymph node NbMLN M... 36 3.1  
 AI006387, AI006387 ua71d09.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.1  
 AA162722, AA162722 mn42b07.r1 Beddington mouse embryonic regi... 36 3.1  
 AA207387, AA207387 mv89a11.r1 GuayWoodford Beier mouse kidney... 36 3.1  
 AA511382, AA511382 vg14b04.r1 Soares mouse NbMH Mus musculus ... 36 3.1  
 AA123112, AA123112 mn30g01.r1 Beddington mouse embryonic regi... 36 3.1  
 AA106683, AA106683 ml83h06.r1 Stratagene mouse kidney (#93731... 36 3.1  
 AA105882, AA105882 ml84h07.r1 Stratagene mouse kidney (#93731... 36 3.1  
 W12171, W12171 ma59a10.r1 Soares mouse p3NMF19.5 Mus musculus... 36 3.1  
 AA208446, AA208446 mv85e01.r1 GuayWoodford Beier mouse kidney... 36 3.1  
 AA451370, AA451370 vf84h02.r1 Soares mouse mammary gland NbMM... 36 3.1  
 AA244639, AA244639 mx02g12.r1 Soares mouse NML Mus musculus c... 36 3.1  
 AA267119, AA267119 mz74d07.r1 Soares mouse lymph node NbMLN M... 36 3.1  
 AA561847, AA561847 vl27a12.r1 Stratagene mouse Tcell 937311 M... 36 3.1  
 AA237313, AA237313 mx17b11.r1 Soares mouse NML Mus musculus c... 36 3.1  
 AA145817, AA145817 mq68a12.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.1  
 AA052080, AA052080 mf69f12.r1 Soares mouse embryo NbME13.5 14... 36 3.1  
 AA000646, AA000646 mg23f09.r1 Soares mouse embryo NbME13.5 14... 36 3.1  
 AA510521, AA510521 vh59a05.r1 Soares mouse mammary gland NbMM... 36 3.1  
 AI006122, AI006122 ua86h01.r1 Soares mouse mammary gland NbMM... 36 3.1  
 AA987039, AA987039 uc74e05.x1 Sugano mouse liver mlia Mus mus... 36 3.1  
 W77413, W77413 me64d06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.1  
 AA114809, AA114809 mn17e09.r1 Beddington mouse embryonic regi... 36 3.1  
 AA793564, AA793564 vn54c05.r1 Barstead mouse myotubes MPLRB5 ... 36 3.1  
 AA174537, AA174537 mt10f09.r1 Soares mouse 3NbMS Mus musculus... 36 3.1  
 W62181, W62181 md87d08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.1  
 AA272905, AA272905 va39d01.r1 Soares mouse 3NME12 5 Mus muscu... 36 3.1  
 AA286005, AA286005 va30e05.r1 GuayWoodford Beier mouse kidney... 36 3.1  
 AA212823, AA212823 mw81c07.r1 Soares mouse NML Mus musculus c... 36 3.1  
 AA125061, AA125061 mq83d10.r1 Stratagene mouse melanoma (#937... 36 3.1

AA519228, AA519228 TgESTzz39h02.s1 TgME49 invivo Bradyzoite c... 44 0.011

AA520185, AA520185	TgESTzz39d03.sl	TgME49 invivo Bradyzoite c...	44	0.011
AA531917, AA531917	TgESTzz48f01.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA519997, AA519997	TgESTzz36h03.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA520811, AA520811	TgESTzz64d05.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA520866, AA520866	TgESTzz68e05.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA519844, AA519844	TgESTzz36c03.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA274295, AA274295	TgESTzz24c11.sl	TgME49 invivo Bradyzoite c...	44	0.011
AA520901, AA520901	TgESTzz65a05.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA519829, AA519829	TgESTzz36a02.r1	TgME49 invivo Bradyzoite c...	44	0.011
AA531839, AA531839	TgESTzz47h05.r1	TgME49 invivo Bradyzoite c...	44	0.011
C70525, C70525	C.elegans cDNA clone yk409g6 : 5' end, single...		44	0.011
AA520235, AA520235	TgESTzz53c06.r1	TgME49 invivo Bradyzoite c...	42	0.044
T42800, T42800	6063 Lambda-PRL2 Arabidopsis thaliana cDNA clo...		42	0.044
R29976, R29976	12581 Lambda-PRL2 Arabidopsis thaliana cDNA cl...		42	0.044
H32045, H32045	EST106774 Rat PC-12 cells, untreated Rattus sp...		40	0.18
AA819924, AA819924	MF5MA171.AE3 S. mansoni female adult Lambd...		40	0.18
H37128, H37128	15257 Lambda-PRL2 Arabidopsis thaliana cDNA cl...		40	0.18
T04367, T04367	414 Lambda-PRL2 Arabidopsis thaliana cDNA clon...		40	0.18
R90528, R90528	16883 Lambda-PRL2 Arabidopsis thaliana cDNA cl...		40	0.18
AA660422, AA660422	00298 MtrHE Medicago truncatula cDNA 5'		40	0.18
U94861, RRU94861	Rattus norvegicus clone HCY3 mRNA sequence		40	0.18
F14275, ATTS5197	A. thaliana transcribed sequence; clone YBY...		38	0.69
W43730, W43730	23107 CD4-16 Arabidopsis thaliana cDNA clone H...		38	0.69
N65025, N65025	20065 Lambda-PRL2 Arabidopsis thaliana cDNA cl...		38	0.69
AI001628, AI001628	EST0210 Tilapia brain cDNA library in pUC1...		38	0.69
H74687, H74687	383 Brassica napus cDNA clone R25R.		38	0.69
AA395597, AA395597	27394 Lambda-PRL2 Arabidopsis thaliana cDN...		38	0.69
AA753070, AA753070	97AS2091 Rice Immature Seed Lambda ZAPII c...		38	0.69
D41274, RICS3647A	Rice cDNA, partial sequence (S3647_1A).		38	0.69
Z25731, ATTS1208	A. thaliana transcribed sequence; clone VCV...		38	0.69
N82780, N82780	TgESTzy34e03.r1 TgRH Tachyzoite cDNA Toxoplas...		38	0.69
AA597822, AA597822	29889 Lambda-PRL2 Arabidopsis thaliana cDN...		38	0.69
AA948906, AA948906	LD27590.5prime LD Drosophila melanogaster ...		38	0.69
AI013695, AI013695	EST208370 Normalized rat spleen, Bento Soa...		38	0.69
AA753263, AA753263	96BS0294 Rice Immature Seed Lambda ZAPII c...		38	0.69
F14402, ATTS5324	A. thaliana transcribed sequence; clone TAP...		36	2.7
T46158, T46158	9421 Lambda-PRL2 Arabidopsis thaliana cDNA clo...		36	2.7
C91400, C91400	Dictyostelium discoideum slug cDNA, clone SSK169		36	2.7
T46009, T46009	9272 Lambda-PRL2 Arabidopsis thaliana cDNA clo...		36	2.7
AA440655, AA440655	LD15510.5prime LD Drosophila melanogaster ...		36	2.7
AA559374, AA559374	MU002092.NH3 York-Harrop-lung-A Schistosom...		36	2.7
Z32623, ATTS2751	A. thaliana transcribed sequence; clone YAP...		36	2.7
T43683, T43683	6946 Lambda-PRL2 Arabidopsis thaliana cDNA clo...		36	2.7
AA263535, AA263535	LD06645.5prime LD Drosophila melanogaster ...		36	2.7
C37095, C37095	C.elegans cDNA clone yk482c11 : 3' end, singl...		36	2.7

C57017, C57017 *C.elegans* cDNA clone yk308h9 : 3' end, single... 36 2.7  
 C93857, C93857 *Dictyostelium discoideum* slug cDNA, clone SSL794 36 2.7  
 C92242, C92242 *Dictyostelium discoideum* slug cDNA, clone SSD283 36 2.7  
 Z33976, ATTS3037 *A. thaliana* transcribed sequence; clone YAP... 36 2.7  
 R62091, R62091 EST351 *Strongylocentrotus purpuratus* cDNA 5' end. 36 2.7  


---

 AA567455, AA567455 HL01288.5prime HL *Drosophila melanogaster* ... 36 2.7  
 C74456, C74456 Rice cDNA, partial sequence (E31357\_1A) 36 2.7  
 AA753227, AA753227 97AS2316 Rice Immature Seed Lambda ZAPII c... 36 2.7  
 C92456, C92456 *Dictyostelium discoideum* slug cDNA, clone SSE569 36 2.7  
 T20458, T20458 2466 Lambda-PRL2 *Arabidopsis thaliana* cDNA clo... 36 2.7  
 R29905, R29905 12510 Lambda-PRL2 *Arabidopsis thaliana* cDNA cl... 36 2.7  
 M79841, M79841 wEST00378 *Caenorhabditis elegans* cDNA clone CE... 36 2.7  
 Z17562, ATTS0136 *A. thaliana* transcribed sequence; clone TAT... 36 2.7  
 D71983, CELK084H2R *C.elegans* cDNA clone yk84h2 : 3' end, sin... 36 2.7  
 T20404, T20404 2412 Lambda-PRL2 *Arabidopsis thaliana* cDNA clo... 36 2.7  
 AI012789, AI012789 EST207240 Normalized rat placenta, Bento S... 36 2.7  
 U83048, BTU83048 *Bos taurus* clone 0429 mRNA sequence 36 2.7  
 AA660182, AA660182 00022 MtRHE *Medicago truncatula* cDNA 5' si... 36 2.7  
 D48514, RICS14740A Rice cDNA, partial sequence (S14740\_1A). 36 2.7  
 C90110, C90110 *Dictyostelium discoideum* slug cDNA, clone SSI103 36 2.7  
 H36880, H36880 15009 Lambda-PRL2 *Arabidopsis thaliana* cDNA cl... 36 2.7  
 AA699152, AA699152 HL07807.5prime HL *Drosophila melanogaster* ... 36 2.7  
 C11922, C11922 *C.elegans* cDNA clone yk144a11 : 5' end, singl... 36 2.7  
 AA816691, AA816691 LD03795.5prime LD *Drosophila melanogaster* ... 36 2.7

SEQ ID NO:556

X99668, MM22A3 *M.musculus* mRNA for exon from unknown gene 22A3 260 5e-67  
 Z83760, CICOS41 *Ciona intestinalis* DNA sequence from cosmid ... 40 0.94  
 Z75710, CED1081 *Caenorhabditis elegans* cosmid D1081, complet... 40 0.94  
 U73628, HSU73628 Human chromosome 11 101h11 cosmid, complete ... 40 0.94  
 X99757, DMDYDTRO *D.melanogaster* mRNA for dystrophin 38 3.7  
 U51189, HIVU51189 HIV-1 clone 93th253 from Thailand, complete... 38 3.7  
 AC004118, AC004118 *Drosophila melanogaster* (P1 DS06238 (D26))... 38 3.7  
 U50313, CELF44C4 *Caenorhabditis elegans* cosmid F44C4. 38 3.7  
 AC004503, AC004503 *Homo sapiens* chromosome 5, P1 clone 1354A7... 38 3.7  
 M16840, WHTCPA2 Wheat Asp-tRNA gene. 38 3.7  
 Y13381, RNAMPH1 *Rattus norvegicus* mRNA for amphiphysin, amph1 38 3.7  
 AC002994, AC002994 *Homo sapiens* chromosome 17, clone HRPC987K... 38 3.7  
 AB008271, AB008271 *Arabidopsis thaliana* genomic DNA, chromos... 38 3.7  
 D49701, ASNNIAD *Aspergillus oryzae* niaD gene for nitrate red... 38 3.7

X59422, HSPLD1 H.sapiens Pl d1 repetitive DNA 38 3.7  
 Z98555, PFSC03027 Plasmodium falciparum DNA \*\*\* SEQUENCING I... 38 3.7

## HUMAN ESTs

---

AA315671, AA315671 EST187451 Colon carcinoma (HCC) cell line ... 932 0.0  
 U56653, HSU56653 Human heat shock inducible mRNA 769 0.0  
 AA487685, AA487685 ab23b09.r1 Stratagene lung (#937210) Homo ... 751 0.0  
 AA044797, AA044797 zk67g12.r1 Soares pregnant uterus NbHPU Ho... 749 0.0  
 AA314922, AA314922 EST186735 HCC cell line (matatasis to liv... 698 0.0  
 AA082278, AA082278 zn42d12.r1 Stratagene endothelial cell 937... 668 0.0  
 H22613, H22613 yn64f03.r1 Homo sapiens cDNA clone 173213 5'. 624 e-177  
 AA044743, AA044743 zk67g12.s1 Soares pregnant uterus NbHPU Ho... 622 e-176  
 AA487470, AA487470 ab23b09.s1 Stratagene lung (#937210) Homo ... 601 e-170  
 AA121057, AA121057 zm22b03.r1 Stratagene pancreas (#937208) H... 581 e-164  
 AA194396, AA194396 zq05g05.s1 Stratagene muscle 937209 Homo s... 535 e-150  
 AA384283, AA384283 EST97787 Thyroid Homo sapiens cDNA 5' end 535 e-150  
 AA669015, AA669015 ab88f01.s1 Stratagene lung (#937210) Homo ... 535 e-150  
 AA194336, AA194336 zq05g05.r1 Stratagene muscle 937209 Homo s... 505 e-141  
 R96173, R96173 yt84e09.r1 Homo sapiens cDNA clone 231016 5'. 486 e-135  
 AA028934, AA028934 zk08b09.s1 Soares pregnant uterus NbHPU Ho... 484 e-134  
 AA564849, AA564849 nj22c04.s1 NCI\_CGAP\_AA1 Homo sapiens cDNA ... 442 e-122  
 AA932576, AA932576 oo57g10.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 440 e-121  
 AA876265, AA876265 oi12g09.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 434 e-120  
 AA025525, AA025525 ze86a11.s1 Soares fetal heart NbHH19W Homo... 430 e-118  
 U56654, HSU56654 Human heat shock inducible mRNA 426 e-117  
 AA746600, AA746600 nx18c02.s1 NCI\_CGAP\_GC3 Homo sapiens cDNA ... 406 e-111  
 AA876346, AA876346 oj24a11.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 406 e-111  
 W23082, W23082 78D1 Human retina cDNA Tsp509I-cleaved sublibr... 402 e-110  
 AI034059, AI034059 ow14h11.x1 Soares parathyroid tumor NbHPA ... 357 2e-96  
 AA662934, AA662934 nu92d09.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 323 2e-86  
 AA844331, AA844331 ai95f01.s1 Soares parathyroid tumor NbHPA ... 301 8e-80  
 AA249866, AA249866 y0761.seq.F Human fetal heart, Lambda ZAP ... 297 1e-78  
 R19215, R19215 yg24b07.r1 Homo sapiens cDNA clone 33126 5'. 280 3e-73  
 T39355, T39355 ya04g08.r1 Homo sapiens cDNA clone 60542 5'. 254 2e-65  
 AA731264, AA731264 nw57c08.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 220 2e-55  
 AA768549, AA768549 oa67c07.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 220 2e-55  
 AA668506, AA668506 ac49a11.s1 Stratagene hNT neuron (#937233)... 216 4e-54  
 T55337, T55337 yb79b05.s1 Homo sapiens cDNA clone 77361 3'. 198 8e-49  
 AA860575, AA860575 aj86a09.s1 Soares parathyroid tumor NbHPA ... 198 8e-49  
 AA335548, AA335548 EST39962 Epididymus Homo sapiens cDNA 5' end 109 6e-22  
 R13183, R13183 yf73f02.r1 Homo sapiens cDNA clone 27960 5'. 58 2e-06  
 T80034, T80034 yd04c06.r1 Homo sapiens cDNA clone 24672 5'. 38 1.8  
 AA595230, AA595230 nl84g02.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 38 1.8

AA871935, AA871935 vq42h02.r1 Barstead bowel MPLRB9 Mus muscu... 664 0.0  
 AA062330, AA062330 ml35e10.r1 Stratagene mouse testis (#93730... 589 e-167  
 AI048164, AI048164 ud71b09.v1 Sugano mouse liver mlie Mus mus... 537 e-151  
 W08037, W08037 mb37h01.r1 Soares mouse p3NMF19.5 Mus musculus... 462 e-128  
 AA387311, AA387311 vc19a03.r1 Ko mouse embryo 11 5dpc Mus mus... 264 6e-69  
 AA163072, AA163072 ms31a11.r1 Stratagene mouse skin (#937313)... 212 2e-53  
 AA596763, AA596763 vm60a10.r1 Stratagene mouse Tcell 937311 M... 178 3e-43  
 AA562549, AA562549 vl63a11.r1 Knowles Solter mouse blastocyst... 143 2e-32  
 AA212378, AA212378 mu44c03.r1 Soares 2NbMT Mus musculus cDNA ... 113 1e-23  
 AA450862, AA450862 vg55h12.r1 Beddington mouse embryonic regi... 111 5e-23  
 AA990073, AA990073 ua59a01.r1 Soares 2NbMT Mus musculus cDNA ... 86 3e-15  
 AA921175, AA921175 vy54b10.r1 Stratagene mouse lung 937302 Mu... 78 8e-13  
 AA261119, AA261119 mz89e01.r1 Soares mouse NML Mus musculus c... 38 0.65  
 AI005952, AI005952 ua80f06.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.6  
 AA123274, AA123274 mn23a08.r1 Beddington mouse embryonic regi... 36 2.6  
 AI036828, AI036828 vw96c02.r1 Stratagene mouse skin (#937313)... 36 2.6

H35787, H35787 EST109178 Rat PC-12 cells, NGF-treated (9 days... 105 3e-21  
 AA686082, AA686082 EST109179 Rat PC-12 cells, NGF-treated (9 ... 86 3e-15  
 C23464, C23464 Jpanese flounder liver cDNA, LE5(10) 72 4e-11  
 C23465, C23465 Jpanese flounder liver cDNA, LE5(10) 56 2e-06  
 AA520314, AA520314 TgESTzz38h12.r1 TgME49 invivo Bradyzoite c... 38 0.57  
 AA520085, AA520085 TgESTzz37g05.r1 TgME49 invivo Bradyzoite c... 38 0.57  
 AA520033, AA520033 TgESTzz36f10.r1 TgME49 invivo Bradyzoite c... 38 0.57  
 AA012516, AA012516 TgESTzz23f04.r1 TgME49cDNA Toxoplasma gond... 38 0.57  
 AA274286, AA274286 TgESTzz24c01.s1 TgME49 invivo Bradyzoite c... 38 0.57  
 AA660585, AA660585 00471 MtRHE Medicago truncatula cDNA 5' si... 38 0.57  
 L35828, BNAESTBD Brassica rapa (clone F0621) expressed sequen... 38 0.57  
 AA520070, AA520070 TgESTzz37e05.r1 TgME49 invivo Bradyzoite c... 38 0.57  
 C30080, C30080 C.elegans cDNA clone yk236c3 : 3' end, single... 36 2.3  
 C39044, C39044 C.elegans cDNA clone yk505a4 : 3' end, single... 36 2.3  
 C55023, C55023 C.elegans cDNA clone yk422a3 : 3' end, single... 36 2.3  
 AA542589, AA542589 fa08d06.s1 Zebrafish ICRFzfls Danio rerio ... 36 2.3  
 N25370, N25370 EST000480 Schistosoma mansoni cDNA clone SMTBA... 36 2.3  
 AA820625, AA820625 LD24443.5prime LD Drosophila melanogaster ... 36 2.3  
 AA494922, AA494922 fa12g10.r1 Zebrafish ICRFzfls Danio rerio ... 36 2.3  
 AA495181, AA495181 fa04d06.s1 Zebrafish ICRFzfls Danio rerio ... 36 2.3  
 D73287, CELK116G6R C.elegans cDNA clone yk116g6 : 3' end, si... 36 2.3  
 C28238, C28238 Rice cDNA, partial sequence (C60429\_1A) 36 2.3

SEQ ID NO:557

AF039693, AF039693 Homo sapiens unknown protein mRNA, complet... 948 0.0  
 S51239, S51239 calreticulin [*Aplysia californica*=marine snail ... 56 1e-05  


---

 Z74035, CEF47G9 *Caenorhabditis elegans* cosmid F47G9, complet... 46 0.012  
 U25723, CPU25723 *Cavia porcellus* alpha-2B adrenoceptor gene, ... 44 0.047  
 AL021407, HS13D10 Homo sapiens DNA sequence from PAC 13D10 o... 42 0.19  
 U67572, U67572 *Methanococcus jannaschii* section 114 of 150 of... 42 0.19  
 V01470, ZMZE01 *Zea mays* gene encoding a zein gene (clone lam... 42 0.19  
 U06631, HSU06631 Human (H326) mRNA, complete cds. 42 0.19  
 X82638, CSCYTOX *C.sordelii* cytotoxin gene 42 0.19  
 AE000926, AE000926 *Methanobacterium thermoautotrophicum* from ... 42 0.19  
 AC004135, AC004135 Genomic sequence for *Arabidopsis thaliana* ... 42 0.19  
 AC003010, HUAC003010 Homo sapiens Chromosome 16 BAC clone CIT... 40 0.74  
 AF050157, MMHC135G15 *Mus musculus* major histocompatibility lo... 40 0.74  
 AC002352, AC002352 Homo sapiens 12q24 PAC P256D10 complete se... 40 0.74  
 X07699, MMNUCLEO Mouse nucleolin gene 40 0.74  
 X02399, MMHOM6 Mouse embryonal carcinoma DNA fragment contai... 40 0.74  
 M93661, RATNOTCHX Rat notch 2 mRNA. 40 0.74  
 M17440, MUSMHC4H2S Mouse MHC (H-2) S region complement compon... 40 0.74  
 U15972, MMU15972 *Mus musculus* homeobox (*Hoxa7*) gene, complete... 40 0.74  
 AB001601, AB001601 Homo sapiens DBP2 mRNA for ATP-dependent ... 40 0.74  
 U09820, HSU09820 Human helicase II (RAD54L) mRNA, complete cds. 40 0.74  
 AB011149, AB011149 Homo sapiens mRNA for KIAA0577 protein, c... 40 0.74  
 U26259, MMU26259 *Mus musculus* C2-H2 zinc finger protein mRNA,... 40 0.74  
 L48363, MUSZFPTX *Mus musculus* zinc finger protein gene, compl... 40 0.74  
 AC003113, AC003113 *Arabidopsis thaliana* BAC F24O1 chromosome ... 40 0.74  
 D76432, D76432 Mouse mRNA for transcriptional repressor delt... 40 0.74  
 U72937, HSU72937 Human putative DNA dependent ATPase and heli... 40 0.74  
 U72915, HSATRX16 Human putative DNA dependent ATPase and heli... 40 0.74  
 U00995, U00995 *Rattus norvegicus* TA1 mRNA, complete cds. 40 0.74  
 Z48618, SCCHVII35 *S.cerevisiae* genes for RAD54, ACE1(CUP2), ... 40 0.74  
 U75653, HSU75653 Human zinc finger helicase (Znf-HX) mRNA, co... 40 0.74  
 Z72672, SCYGL150C *S.cerevisiae* chromosome VII reading frame ... 40 0.74  
 Z50109, CEC09H10 *Caenorhabditis elegans* cosmid C09H10, compl... 40 0.74  
 AF013969, AF013969 *Mus musculus* antigen containing epitope to... 40 0.74  
 M95627, HUMAAMP1X Homo sapiens angio-associated migratory cel... 40 0.74  
 U72936, HSU72936 Human putative DNA dependent ATPase and heli... 40 0.74  
 M88753, DROHTCHRPI Fruitfly heterochromatin protein-1 gene, c... 40 0.74  
 U76906, REU76906 *Rhizobium etli* FixK (fixK), FixN (fixN), mon... 40 0.74  
 U97085, HSXNP14 Homo sapiens X-linked nuclear protein (ATRX) ... 40 0.74  
 L34363, HUMNUCPRO Human X-linked nuclear protein (XNP) gene, ... 40 0.74  
 U72938, HSU72938 Human putative DNA dependent ATPase and heli... 40 0.74

X56983, EAVATP1	E.arvense gene for catalytic 70kDa V-ATPase ...	40	0.74
U88539, MMU88539	Mus musculus chromatin structural protein ho...	40	0.74
U07704, HSU07704	Human protein kinase PITSLRE isoform PBETA21...	38	2.9
U07705, HSU07705	Human protein kinase PITSLRE isoform PBETA22...	38	2.9
AF019612, AF019612	Homo sapiens S2P mRNA, complete cds	38	2.9
U04818, HSU04818	Human protein kinase PITSLRE alpha 2-4 mRNA,...	38	2.9
AB002381, AB002381	Human mRNA for KIAA0383 gene, partial cds	38	2.9
AB009520, AB009520	Pyrococcus horikoshii OT3 genomic DNA, 13...	38	2.9
Z83848, HS57A13	Human DNA sequence from PAC 57A13 between ma...	38	2.9
AC004592, AC004592	Homo sapiens PAC clone DJ0244J05 from 5q31...	38	2.9
L11710, ZEFZCMYC	Brachydanio rerio c-myc oncoprotein mRNA, co...	38	2.9
D43920, CHKMETASE	Chicken mRNA for DNA (cytosine-5-)-methylt...	38	2.9
U49056, RNU49056	Rattus norvegicus CTD-binding SR-like protei...	38	2.9
U04824, HSU04824	Human protein kinase PITSLRE alpha 2-1 mRNA,...	38	2.9
U78045, HSU78045	Human collagenase and stromelysin genes, com...	38	2.9
U04816, HSU04816	Human protein kinase PITSLRE alpha 2-2 mRNA,...	38	2.9
U04817, HSU04817	Human protein kinase PITSLRE alpha 2-3 mRNA,...	38	2.9

## HUMAN ESTs

AA639190, AA639190	ns04a01.r1 NCI_CGAP_Ew1 Homo sapiens cDNA ...	519	e-145
AA172199, AA172199	zo96a06.r1 Stratagene ovarian cancer (#937...	513	e-144
R23642, R23642	yh35e03.r1 Homo sapiens cDNA clone 131740 5'.	490	e-136
AA902270, AA902270	ok69e04.s1 NCI_CGAP_GC4 Homo sapiens cDNA ...	450	e-124
AA947303, AA947303	ok20d04.s1 Soares NSF_F8_9W_OT_PA_P_S1 Hom...	402	e-110
AA588066, AA588066	nk10d08.s1 NCI_CGAP_Co2 Homo sapiens cDNA ...	347	1e-93
AA412036, AA412036	zt68d09.s1 Soares testis NHT Homo sapiens ...	347	1e-93
AA480337, AA480337	ne33a03.s1 NCI_CGAP_Co3 Homo sapiens cDNA ...	347	1e-93
AA508745, AA508745	ni23a03.s1 NCI_CGAP_Co4 Homo sapiens cDNA ...	347	1e-93
AA172083, AA172083	zo96a06.s1 Stratagene ovarian cancer (#937...	315	4e-84
AA811913, AA811913	ob51d06.s1 NCI_CGAP_GCB1 Homo sapiens cDNA...	299	2e-79
AA402403, AA402403	zt68d09.r1 Soares testis NHT Homo sapiens ...	299	2e-79
AA725458, AA725458	ai16g01.s1 Soares parathyroid tumor NbHPA ...	250	2e-64
R26558, R26558	yh35e02.s1 Homo sapiens cDNA clone 131738 3'.	250	2e-64
W25749, W25749	11b4 Human retina cDNA randomly primed sublibr...	103	3e-20
W27158, W27158	22h9 Human retina cDNA randomly primed sublibr...	66	6e-09
AA737681, AA737681	nw63c04.s1 NCI_CGAP_GCB1 Homo sapiens cDNA...	42	0.090
T65784, T65784	yc11f10.s1 Homo sapiens cDNA clone 80395 3' si...	42	0.090
R52021, R52021	yg84h09.r1 Homo sapiens cDNA clone 40181 5' si...	42	0.090
AA569993, AA569993	nm47h04.s1 NCI_CGAP_Br2 Homo sapiens cDNA ...	42	0.090
R50149, R50149	yj61c05.s1 Homo sapiens cDNA clone 153224 3' s...	42	0.090
R87930, R87930	yo47a11.s1 Homo sapiens cDNA clone 181052 3' s...	42	0.090
AA812204, AA812204	ob84f01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA...	42	0.090
AA770224, AA770224	ah82e12.s1 Soares testis NHT Homo sapiens ...	42	0.090

D29591, HUMNK752	Human keratinocyte cDNA, clone 752	40	0.36
AA324325, AA324325	EST27219 Cerebellum II Homo sapiens cDNA 5...	40	0.36
AA053063, AA053063	zl71c03.r1 Stratagene colon (#937204) Homo...	40	0.36
T35539, T35539	EST86964 Homo sapiens cDNA 5' end similar to N...	40	0.36
AA974278, AA974278	oq14d03.s1 NCI_CGAP_GC4 Homo sapiens cDNA ...	40	0.36
W26196, W26196	22b5 Human retina cDNA randomly primed sublibr...	40	0.36
H92585, H92585	yt89c03.s1 Homo sapiens cDNA clone 231460 3'.	40	0.36
AA232334, AA232334	zr27b04.r1 Stratagene NT2 neuronal precurs...	40	0.36
N55775, N55775	J2481F Homo sapiens cDNA clone J2481 5'.	40	0.36
R98701, R98701	yr31f08.s1 Homo sapiens cDNA clone 206919 3'.	40	0.36
C14370, C14370	Human fetal brain cDNA 5'-end GEN-050F01	40	0.36
H19156, H19156	yn50c01.r1 Homo sapiens cDNA clone 171840 5'.	40	0.36
AA299557, AA299557	EST12080 Uterus tumor I Homo sapiens cDNA ...	40	0.36
W84460, W84460	zd89d12.r1 Soares fetal heart NbHH19W Homo sap...	40	0.36
T54194, T54194	ya90a02.r2 Homo sapiens cDNA clone 68906 5'.	40	0.36
AA100203, AA100203	zm16f12.r1 Stratagene pancreas (#937208) H...	38	1.4
AA993061, AA993061	ot92h08.s1 Soares_total_fetus_Nb2HF8_9w Ho...	38	1.4
R53406, R53406	yj70d07.r1 Homo sapiens cDNA clone 154093 5' s...	38	1.4
H99671, H99671	yx35b03.s1 Homo sapiens cDNA clone 263693 3'.	38	1.4
W03410, W03410	za07c09.r1 Soares melanocyte 2NbHM Homo sapien...	38	1.4
N35475, N35475	yy24b03.s1 Homo sapiens cDNA clone 272141 3'.	38	1.4
AA630851, AA630851	nt57f04.s1 NCI_CGAP_Pr3 Homo sapiens cDNA ...	38	1.4
N66458, N66458	yz41b08.s1 Homo sapiens cDNA clone 285591 3'.	38	1.4
AA736438, AA736438	zh31b09.s1 Soares pineal gland N3HPG Homo ...	38	1.4
AA911761, AA911761	og19b01.s1 NCI_CGAP_PNS1 Homo sapiens cDNA...	38	1.4
AA085513, AA085513	zn43a10.r1 Stratagene HeLa cell s3 937216 ...	38	1.4
AA678530, AA678530	ah02e05.s1 Gessler Wilms tumor Homo sapien...	38	1.4
AA782011, AA782011	ai75b12.s1 Soares testis NHT Homo sapiens ...	38	1.4
F12352, HSC38H091	H. sapiens partial cDNA sequence; clone c-...	38	1.4
AA861288, AA861288	ak33g01.s1 Soares testis NHT Homo sapiens ...	38	1.4
AA908705, AA908705	ol01b09.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ...	38	1.4
AA298850, AA298850	EST114450 Thyroid Homo sapiens cDNA 5' end	38	1.4
AA237204, AA237204	mx18d02.r1 Soares mouse NML Mus musculus c...	172	1e-41
AI047347, AI047347	ud65c01.y1 Sugano mouse liver mlia Mus mus...	42	0.032
AA832736, AA832736	vw45g10.r1 Soares mouse mammary gland NbMM...	42	0.032
AA960471, AA960471	vw63a05.s1 Soares mouse mammary gland NMLM...	40	0.13
AA880584, AA880584	vw92e01.r1 Stratagene mouse skin (#937313)...	40	0.13
AA107508, AA107508	mp05e07.r1 Life Tech mouse embryo 8 5dpc 1...	40	0.13
AA116682, AA116682	mn28c06.r1 Beddington mouse embryonic regi...	40	0.13
AA522310, AA522310	vi45b02.r1 Beddington mouse embryonic regi...	40	0.13
AA162231, AA162231	mn44h02.r1 Beddington mouse embryonic regi...	40	0.13



AA414037, AA414037 vc68g03.s1 Knowles Solter mouse 2 cell Mus... 40 0.13  
 AA596585, AA596585 vm58e12.r1 Stratagene mouse Tcell 937311 M... 38 0.51  
 AA863563, AA863563 vx05a10.r1 Soares 2NbMT Mus musculus cDNA ... 38 0.51  
 AA795177, AA795177 vq94g04.r1 Knowles Solter mouse blastocyst... 38 0.51  
 AA914764, AA914764 vy92h04.r1 Soares mouse mammary gland NbMM... 38 0.51  
 AA590440, AA590440 vm20c04.r1 Knowles Solter mouse blastocyst... 38 0.51  


---

 AA563402, AA563402 vl75d08.r1 Knowles Solter mouse blastocyst... 38 0.51  
 AA260352, AA260352 va93c10.r1 Soares mouse 3NME12 5 Mus muscu... 38 0.51  
 AA444734, AA444734 ve75d10.r1 Soares mouse mammary gland NbMM... 38 0.51  
 C85885, C85885 Mus musculus fertilized egg cDNA 3'-end seque... 38 0.51  
 AA794590, AA794590 vu78h12.r1 Stratagene mouse skin (#937313)... 38 0.51  
 AA529643, AA529643 vi38a09.r1 Beddington mouse embryonic regi... 38 0.51  
 AA607084, AA607084 vm84a09.r1 Knowles Solter mouse blastocyst... 38 0.51  
 AA636994, AA636994 vn05g06.r1 Knowles Solter mouse blastocyst... 38 0.51  
 AA675676, AA675676 vr73h08.s1 Knowles Solter mouse 2 cell Mus... 38 0.51  
 AA163890, AA163890 ms52f09.r1 Life Tech mouse embryo 13 5dpc ... 38 0.51  
 C80539, C80539 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 38 0.51  
 AA051352, AA051352 mj53a09.r1 Soares mouse embryo NbME13.5 14... 38 0.51  
 W36885, W36885 mb64f09.r1 Soares mouse p3NMF19.5 Mus musculus... 38 0.51  
 AA930627, AA930627 vy67c05.r1 Stratagene mouse macrophage (#9... 38 0.51  
 AA244639, AA244639 mx02g12.r1 Soares mouse NML Mus musculus c... 36 2.0  
 AA967267, AA967267 vz70e08.r1 Soares mouse mammary gland NbMM... 36 2.0  
 AI048938, AI048938 uc84h06.y1 Sugano mouse kidney mkia Mus mu... 36 2.0  
 AA162722, AA162722 mn42b07.r1 Beddington mouse embryonic regi... 36 2.0  
 AA170036, AA170036 ms52d01.r1 Life Tech mouse embryo 13 5dpc ... 36 2.0  
 AA511382, AA511382 vg14b04.r1 Soares mouse NbMH Mus musculus ... 36 2.0  
 AA555634, AA555634 vk49f08.r1 Stratagene mouse Tcell 937311 M... 36 2.0  
 AA212823, AA212823 mw81c07.r1 Soares mouse NML Mus musculus c... 36 2.0  
 AA606813, AA606813 vm90h12.r1 Knowles Solter mouse blastocyst... 36 2.0  
 AA591610, AA591610 vk49d08.r1 Stratagene mouse Tcell 937311 M... 36 2.0  
 AA987039, AA987039 uc74e05.x1 Sugano mouse liver mlia Mus mus... 36 2.0  
 AA105882, AA105882 ml84h07.r1 Stratagene mouse kidney (#93731... 36 2.0  
 AA451370, AA451370 vf84h02.r1 Soares mouse mammary gland NbMM... 36 2.0  
 AA612185, AA612185 vo03d05.r1 Stratagene mouse skin (#937313)... 36 2.0  
 AA103424, AA103424 mo21e05.r1 Life Tech mouse embryo 13 5dpc ... 36 2.0  
 AA145817, AA145817 mq68a12.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.0  
 AA272905, AA272905 va39d01.r1 Soares mouse 3NME12 5 Mus muscu... 36 2.0  
 AA237313, AA237313 mx17b11.r1 Soares mouse NML Mus musculus c... 36 2.0  
 AA267119, AA267119 mz74d07.r1 Soares mouse lymph node NbMLN M... 36 2.0  
 AA106683, AA106683 ml83h06.r1 Stratagene mouse kidney (#93731... 36 2.0  
 AA125061, AA125061 mq83d10.r1 Stratagene mouse melanoma (#937... 36 2.0  
 AA655241, AA655241 vq84c07.s1 Knowles Solter mouse 2 cell Mus... 36 2.0  
 AA512835, AA512835 vg13f11.r1 Soares mouse NbMH Mus musculus ... 36 2.0

C70525, C70525	C.elegans cDNA clone yk409g6 : 5' end, single...	44	0.007
F15112, SSO4D09	S.scrofa mRNA; expressed sequence tag (5'; c...	42	0.029
AA684640, AA684640	EST104989 Rat PC-12 cells, untreated Rattu...	40	0.11
H32045, H32045	EST106774 Rat PC-12 cells, untreated Rattus sp...	40	0.11
AA660422, AA660422	00298 MtrHE Medicago truncatula cDNA 5'	40	0.11
C59696, C59696	C.elegans cDNA clone yk440e1 : 3' end, single...	38	0.45
AI008699, AI008699	EST203150 Normalized rat embryo, Bento Soa...	38	0.45
AA753263, AA753263	96BS0294 Rice Immature Seed Lambda ZAPII c...	38	0.45
T38461, T38461	EST103957 Saccharomyces cerevisiae cDNA 3' end.	38	0.45
C59257, C59257	C.elegans cDNA clone yk386b12 : 3' end, singl...	38	0.45
AA948906, AA948906	LD27590.5prime LD Drosophila melanogaster ...	38	0.45
AI001628, AI001628	EST0210 Tilapia brain cDNA library in pUC1...	38	0.45
H31962, H31962	EST106545 Rat PC-12 cells, untreated Rattus sp...	38	0.45
AA979509, AA979509	LD34118.5prime LD Drosophila melanogaster ...	38	0.45
D41274, RICS3647A	Rice cDNA, partial sequence (S3647_1A).	38	0.45
C58362, C58362	C.elegans cDNA clone yk366a8 : 3' end, single...	38	0.45
C57756, C57756	C.elegans cDNA clone yk298b9 : 3' end, single...	38	0.45
AA753070, AA753070	97AS2091 Rice Immature Seed Lambda ZAPII c...	38	0.45
H74687, H74687	383 Brassica napus cDNA clone R25R.	38	0.45
C10513, C10513	C.elegans cDNA clone yk147e9 : 3' end, single...	38	0.45
C55569, C55569	C.elegans cDNA clone yk191d1 : 3' end, single...	38	0.45
C94819, C94819	Sus scrofa mRNA; expressed sequence tag (5'; ...	38	0.45
C32982, C32982	C.elegans cDNA clone yk338a12 : 3' end, singl...	38	0.45
AA816691, AA816691	LD03795.5prime LD Drosophila melanogaster ...	36	1.8
AA519844, AA519844	TgESTzz36c03.r1 TgME49 invivo Bradyzoite c...	36	1.8
AA531839, AA531839	TgESTzz47h05.r1 TgME49 invivo Bradyzoite c...	36	1.8
AA660182, AA660182	00022 MtrHE Medicago truncatula cDNA 5' si...	36	1.8
D71983, CELK084H2R	C.elegans cDNA clone yk84h2 : 3' end, sin...	36	1.8
R29905, R29905	12510 Lambda-PRL2 Arabidopsis thaliana cDNA cl...	36	1.8
AA519997, AA519997	TgESTzz36h03.r1 TgME49 invivo Bradyzoite c...	36	1.8
U83048, BTU83048	Bos taurus clone 0429 mRNA sequence	36	1.8
AA440655, AA440655	LD15510.5prime LD Drosophila melanogaster ...	36	1.8
AA559374, AA559374	MU002092.NH3 York-Harrop-lung-A Schistosom...	36	1.8
C93857, C93857	Dictyostelium discoideum slug cDNA, clone SSL794	36	1.8
AA520901, AA520901	TgESTzz65a05.r1 TgME49 invivo Bradyzoite c...	36	1.8
T46158, T46158	9421 Lambda-PRL2 Arabidopsis thaliana cDNA clo...	36	1.8
AA520866, AA520866	TgESTzz68e05.r1 TgME49 invivo Bradyzoite c...	36	1.8
Z17562, ATTS0136	A. thaliana transcribed sequence; clone TAT...	36	1.8
AA520811, AA520811	TgESTzz64d05.r1 TgME49 invivo Bradyzoite c...	36	1.8
AA567455, AA567455	HL01288.5prime HL Drosophila melanogaster ...	36	1.8
AA519228, AA519228	TgESTzz39h02.s1 TgME49 invivo Bradyzoite c...	36	1.8
AA531917, AA531917	TgESTzz48f01.r1 TgME49 invivo Bradyzoite c...	36	1.8
AA519829, AA519829	TgESTzz36a02.r1 TgME49 invivo Bradyzoite c...	36	1.8
AA520185, AA520185	TgESTzz39d03.s1 TgME49 invivo Bradyzoite c...	36	1.8
C37095, C37095	C.elegans cDNA clone yk482c11 : 3' end, singl...	36	1.8

T46009, T46009 9272 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8  
 T20458, T20458 2466 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8  
 F14402, ATTS5324 A. thaliana transcribed sequence; clone TAP... 36 1.8  
 T20404, T20404 2412 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8  
 AA274295, AA274295 TgESTzz24c11.s1 TgME49 invivo Bradyzoite c... 36 1.8  
 AA699152, AA699152 HL07807.5prime HL Drosophila melanogaster ... 36 1.8  
 AA902065, AA902065 NCM1A12T3 Mycelial Neurospora crassa cDNA ... 36 1.8

---

## SEQ ID NO:558

AF016585, AF016585 Streptomyces caelestis cytochrome P-450 hy... 42 0.092  
 U50719, MSU50719 Manduca sexta neuroglian mRNA, complete cds 40 0.36  
 Z97208, SPAC15A10 S.pombe chromosome I cosmid c15A10 40 0.36  
 AC003063, AC003063 Mus musculus Chromosome 16 BAC Clone b40-o... 40 0.36  
 X66455, MMFGFR2 M.musculus promoter region of fibroblast gro... 40 0.36  
 D83785, D83785 Human mRNA for KIAA0200 gene, complete cds 40 0.36  
 AC000398, AC000398 Genomic sequence from Mouse 11, complete s... 38 1.4  
 AF062345, AF062345 Caulobacter crescentus Sts1 (sts1), S-laye... 38 1.4  
 X12359, RCNIFR12 Rhodobacter capsulatus nifR1 and nifR2 gene 38 1.4  
 X72382, RCNIFR3 R.capsulatus nifR3 DNA 38 1.4

## HUMAN ESTs

R36714, R36714 yh93g06.s1 Homo sapiens cDNA clone 137338 3'. 775 0.0  
 D61030, HUM149A04B Human fetal brain cDNA 5'-end GEN-149A04. 666 0.0  
 D60944, HUM141D02B Human fetal brain cDNA 5'-end GEN-141D02. 656 0.0  
 H03308, H03308 yj47d09.s1 Homo sapiens cDNA clone 151889 3'. 609 e-172  
 AA435561, AA435561 zt73d09.s1 Soares testis NHT Homo sapiens ... 587 e-166  
 AA977877, AA977877 oq56d03.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 571 e-161  
 AA846787, AA846787 aj41h03.s1 Soares testis NHT Homo sapiens ... 563 e-159  
 AA972542, AA972542 oo82e01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 561 e-158  
 AA954270, AA954270 on72e06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 557 e-157  
 AA740333, AA740333 ob23c02.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 557 e-157  
 AA999722, AA999722 ov04c06.s1 NCI\_CGAP\_Kid3 Homo sapiens cDNA... 555 e-156  
 AA970621, AA970621 op40h08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 551 e-155  
 AA932930, AA932930 oo04g11.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 541 e-152  
 AA725406, AA725406 ai13b11.s1 Soares parathyroid tumor NbHPA ... 539 e-152  
 W74439, W74439 zd75d10.s1 Soares fetal heart NbHH19W Homo sap... 539 e-152  
 AA868538, AA868538 ak43e08.s1 Soares testis NHT Homo sapiens ... 539 e-152  
 R79832, R79832 yi89b08.s1 Homo sapiens cDNA clone 146391 3's... 537 e-151

R63227, R63227 yi07e06.s1 Homo sapiens cDNA clone 138562 3'. 535 e-150  
 AI027967, AI027967 ov84d04.x1 Soares\_testis\_NHT Homo sapiens ... 535 e-150  
 AA776717, AA776717 ah49d07.s1 Soares testis NHT Homo sapiens ... 535 e-150  
 AI040961, AI040961 ov53d06.x1 Soares\_testis\_NHT Homo sapiens ... 533 e-150  
 AI024835, AI024835 ov35h09.x1 Soares\_testis\_NHT Homo sapiens ... 533 e-150  
 AA740667, AA740667 ob01g12.s1 NCI\_CGAP\_Kid3 Homo sapiens cDNA... 531 e-149  
 AA994527, AA994527 ou42h06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 531 e-149  
 AA932728, AA932728 oo31g06.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 529 e-149  
 AI001978, AI001978 ot39f03.s1 Soares\_testis\_NHT Homo sapiens ... 529 e-149  
 N37092, N37092 yy41g08.s1 Homo sapiens cDNA clone 273854 3'. 529 e-149  
 N27547, N27547 yy01e05.s1 Homo sapiens cDNA clone 269984 3'. 527 e-148  
 AA883578, AA883578 al46b08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 527 e-148  
 AA890154, AA890154 al53f07.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 525 e-147  
 AA757222, AA757222 ah56f11.s1 Soares testis NHT Homo sapiens ... 525 e-147  
 AA456074, AA456074 aa17b07.s1 Soares\_NhHMPu\_S1 Homo sapiens c... 523 e-147  
 AA884285, AA884285 am32f04.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 523 e-147  
 AA969436, AA969436 op53e12.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 521 e-146  
 AA952918, AA952918 on55h11.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 521 e-146  
 AA971938, AA971938 op88b01.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 521 e-146  
 R25112, R25112 yh36b12.s1 Homo sapiens cDNA clone 131807 3'. 519 e-146  
 AA865258, AA865258 og87d08.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 519 e-146  
 AA758323, AA758323 ah65e11.s1 Soares testis NHT Homo sapiens ... 519 e-146  
 AA972041, AA972041 op88e06.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 519 e-146  
 R76443, R76443 yi58e11.s1 Homo sapiens cDNA clone 143468 3'. 519 e-146  
 AA917965, AA917965 om37e04.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 517 e-145  
 AA505880, AA505880 ni01a09.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 517 e-145  
 AA906270, AA906270 oj98e12.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 517 e-145  
 AA758549, AA758549 ah70b04.s1 Soares testis NHT Homo sapiens ... 517 e-145  
 AA927156, AA927156 om20f05.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 515 e-144  
 AA976254, AA976254 oo30f08.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 515 e-144  
 R23891, R23891 yh28a12.s1 Homo sapiens cDNA clone 131038 3'. 515 e-144  
 AA938552, AA938552 oo78g11.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 513 e-144  
 AA483809, AA483809 ne41c08.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 513 e-144  
 AA962659, AA962659 or31f10.s1 NCI\_CGAP\_GC3 Homo sapiens cDNA ... 511 e-143  
 AA724803, AA724803 ai05f02.s1 Soares parathyroid tumor NbHPA ... 511 e-143  
 AA410432, AA410432 zv12c09.s1 Soares\_NhHMPu\_S1 Homo sapiens c... 511 e-143  
 AA775373, AA775373 ad19c07.s1 Soares\_NbHFB Homo sapiens cDNA ... 511 e-143  
 AA758038, AA758038 ah67h09.s1 Soares testis NHT Homo sapiens ... 509 e-143  
 AA904368, AA904368 ol15d02.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 509 e-143  
 AA861386, AA861386 ak37b11.s1 Soares testis NHT Homo sapiens ... 507 e-142  
 R31547, R31547 yh72g03.s1 Homo sapiens cDNA clone 135316 3'. 505 e-141  
 AA843421, AA843421 ak07f11.s1 Soares parathyroid tumor NbHPA ... 504 e-141  
 H02479, H02479 yj35e10.s1 Homo sapiens cDNA clone 150762 3'. 504 e-141  
 N29346, N29346 yw85c12.s1 Homo sapiens cDNA clone 259030 3'. 504 e-141  
 AA815351, AA815351 ai63g05.s1 Soares testis NHT Homo sapiens ... 504 e-141

AA923373, AA923373 ol46e03.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 502 e-140  
H01218, H01218 yj31c08.s1 Homo sapiens cDNA clone 150350 3'. 500 e-140  
AA988977, AA988977 or87e11.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 500 e-140  
AA628621, AA628621 af40c02.s1 Soares total fetus Nb2HF8 9w Ho... 500 e-140  
AA442745, AA442745 zv60a07.s1 Soares testis NHT Homo sapiens ... 498 e-139  
~~AA777492, AA777492 zj02e07.s1 Soares fetal liver spleen 1NFLS... 498 e-139~~

---

R73670, R73670 yi55f03.s1 Homo sapiens cDNA clone 143165 3'. 498 e-139  
H12460, H12460 yj12d05.s1 Homo sapiens cDNA clone 148521 3'. 498 e-139  
AA875917, AA875917 oj15a08.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 496 e-138  
R76230, R76230 yi71g11.s1 Homo sapiens cDNA clone 144740 3'. 494 e-138  
AA970616, AA970616 op40h03.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 494 e-138  
AA912408, AA912408 ol23a05.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 492 e-137  
AA910051, AA910051 ol40e08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 492 e-137  
AA815444, AA815444 ai65b11.s1 Soares testis NHT Homo sapiens ... 492 e-137  
R76814, R76814 yi62f06.s1 Homo sapiens cDNA clone 143843 3'. 488 e-136  
AA954722, AA954722 oo84c12.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 488 e-136  
R65987, R65987 yi23e10.s1 Homo sapiens cDNA clone 140106 3'. 486 e-136  
R63480, R63480 yi08e11.s1 Homo sapiens cDNA clone 138668 3'. 486 e-136  
AA885425, AA885425 am12h09.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 486 e-136  
AA884231, AA884231 am32a01.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 484 e-135  
AA885048, AA885048 am11a12.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 482 e-134  
AA996162, AA996162 os14f10.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 482 e-134  
AA748637, AA748637 ny10a02.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 482 e-134  
AI031908, AI031908 ow47e12.x1 Soares\_parathyroid\_tumor\_NbHPA ... 482 e-134  
AA884703, AA884703 am18e02.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 480 e-134  
AA928243, AA928243 on87c10.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 480 e-134  
AI025986, AI025986 ow03a09.s1 Soares\_parathyroid\_tumor\_NbHPA ... 478 e-133  
AA897637, AA897637 oj72g07.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 472 e-131  
AA877346, AA877346 olc07.s1 NCI\_CGAP\_Col10 Homo sapiens cDNA... 472 e-131  
AA833569, AA833569 aj46b02.s1 Soares testis NHT Homo sapiens ... 472 e-131  
AA832163, AA832163 oc91b02.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 470 e-131  
R89052, R89052 ym99e08.s1 Homo sapiens cDNA clone 167078 3'. 470 e-131  
N26589, N26589 yx91f03.s1 Homo sapiens cDNA clone 269117 3'. 460 e-128  
R73883, R73883 yi56c03.s1 Homo sapiens cDNA clone 143236 3'. 454 e-126  
AA579968, AA579968 ng51c03.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 444 e-123  
AA843427, AA843427 ak07g06.s1 Soares\_parathyroid\_tumor\_NbHPA ... 438 e-121  
AA705903, AA705903 ah42g12.s1 Soares testis NHT Homo sapiens ... 436 e-121  
AA835882, AA835882 oc81d05.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 434 e-120  
AA812583, AA812583 aj43b02.s1 Soares testis NHT Homo sapiens ... 432 e-119  
AA512970, AA512970 nj16b08.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 432 e-119  
R26664, R26664 yh35g10.s1 Homo sapiens cDNA clone 131778 3'. 428 e-118  
AA429715, AA429715 zv60a07.r1 Soares testis NHT Homo sapiens ... 414 e-114  
H17430, H17430 ym40f09.s1 Homo sapiens cDNA clone 50607 3'. 404 e-111  
AA436117, AA436117 zu03d10.r1 Soares testis NHT Homo sapiens ... 402 e-110  
AA099077, AA099077 zl77a09.s1 Stratagene colon (#937204) Homo... 400 e-110

R72440, R72440 yj90h02.s1 Homo sapiens cDNA clone 156051 3'. 379 e-103  
 AA577436, AA577436 nm96h06.s1 NCI\_CGAP\_Co9 Homo sapiens cDNA ... 351 4e-95  
 AA516390, AA516390 nf55e03.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 347 6e-94  
 AA534533, AA534533 nf80h06.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 341 3e-92  
 AA541583, AA541583 ni89f05.s1 NCI\_CGAP\_Pr21 Homo sapiens cDNA... 311 3e-83  
 N72191, N72191 yz99f07.s1 Homo sapiens cDNA clone 291205 3' 303 8e-81  


---

 AA905015, AA905015 ok09b08.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 303 8e-81  
 AA393148, AA393148 zt73d09.r1 Soares testis NHT Homo sapiens ... 287 4e-76  
 AA939048, AA939048 op56h04.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 256 2e-66  
 AA412317, AA412317 zt97c05.r1 Soares testis NHT Homo sapiens ... 246 2e-63  
 R65986, R65986 yi23e10.r1 Homo sapiens cDNA clone 140106 5'. 238 4e-61  
 AA400827, AA400827 zt76c07.s1 Soares testis NHT Homo sapiens ... 232 2e-59  
 W00472, W00472 yz99f07.r1 Homo sapiens cDNA clone 291205 5'. 180 8e-44  
 AA860558, AA860558 aj81e09.s1 Soares parathyroid tumor NbHPA ... 180 8e-44  
 AA455577, AA455577 aa17b07.r1 Soares NhHMPu S1 Homo sapiens c... 176 1e-42  
 AA583931, AA583931 nn64e04.s1 NCI\_CGAP\_Lar1 Homo sapiens cDNA... 172 2e-41  
 AA907332, AA907332 ol22g11.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 168 3e-40  
 R71169, R71169 yi53a12.r1 Homo sapiens cDNA clone 142942 5'. 159 3e-37  
 W79084, W79084 zd75d10.r1 Soares fetal heart NbHH19W Homo sap... 155 4e-36  
 AA295914, AA295914 EST101137 Thymus III Homo sapiens cDNA 5' end 135 4e-30  
 AA860415, AA860415 aj60d10.s1 Soares testis NHT Homo sapiens ... 100 2e-19  
 H01351, H01351 yi99a07.r1 Homo sapiens cDNA clone 147348 5'. 98 9e-19  
 AA709286, AA709286 ai21g07.s1 Soares testis NHT Homo sapiens ... 96 3e-18  
 AA931370, AA931370 oo03d01.s1 Soares\_NFL\_T\_GBC\_S1 Homo sapien... 96 3e-18  
 AA501911, AA501911 ng54a08.s1 NCI\_CGAP\_Li2 Homo sapiens cDNA ... 94 1e-17  
 AA548419, AA548419 nj14g09.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 92 5e-17  
 AA588892, AA588892 no23b06.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 92 5e-17  
 AI025228, AI025228 ov40h08.x1 Soares testis\_NHT Homo sapiens ... 76 3e-12  
 R73757, R73757 yi55f03.r1 Homo sapiens cDNA clone 143165 5'. 74 1e-11  
 R23710, R23710 yh35g10.r1 Homo sapiens cDNA clone 131778 5'. 56 3e-06  
 N40362, N40362 yy01e05.r1 Homo sapiens cDNA clone 269984 5'. 50 2e-04  
 H59895, H59895 yr04c12.r1 Homo sapiens cDNA clone 204310 5'. 48 7e-04  
 H12509, H12509 yj12d05.r1 Homo sapiens cDNA clone 148521 5'. 44 0.011  
 N20344, N20344 yx38d02.s1 Homo sapiens cDNA clone 264003 3'. 38 0.70  
 AA614692, AA614692 np52b10.s1 NCI\_CGAP\_Br1.1 Homo sapiens cDN... 38 0.70  
 H30707, H30707 yo78f07.r1 Homo sapiens cDNA clone 184069 5'. 36 2.7  
 H52973, H52973 yq82e04.r1 Homo sapiens cDNA clone 202302 5'. 36 2.7  
 AA218550, AA218550 zq96b02.r1 Stratagene NT2 neuronal precurs... 36 2.7  
 AA312481, AA312481 EST183215 Jurkat T-cells VI Homo sapiens c... 36 2.7  
 AA632009, AA632009 np74c07.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 36 2.7  
 H13363, H13363 yl71b10.r1 Homo sapiens cDNA clone 43343 5'. 36 2.7  
 AI022018, AI022018 ow64d01.x1 Soares\_senescent\_fibroblasts\_Nb... 36 2.7  
 AA781996, AA781996 ai75a06.s1 Soares testis NHT Homo sapiens ... 36 2.7  
 N21623, N21623 yx60a09.s1 Homo sapiens cDNA clone 266104 3'. 36 2.7  
 AA326194, AA326194 EST29340 Cerebellum II Homo sapiens cDNA 5... 36 2.7

C76071, C76071 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 250 4e-65  
 AA051612, AA051612 mj52c07.r1 Soares mouse embryo NbME13.5 14... 238 1e-61  
~~AA561635, AA561635 vl01h07.r1 Knowles Solter mouse blastocyst... 234 2e-60~~  
 AA288419, AA288419 vb14h01.r1 Soares mouse NML Mus musculus c... 220 3e-56  
 AA212883, AA212883 mw78e10.r1 Soares mouse NML Mus musculus c... 220 3e-56  
 AA268018, AA268018 vb08e07.r1 Soares mouse NML Mus musculus c... 212 8e-54  
 AA692427, AA692427 vt59b07.r1 Barstead mouse irradiated colon... 200 3e-50  
 W18566, W18566 mb98h02.r1 Soares mouse p3NMF19.5 Mus musculus... 192 7e-48  
 AA543948, AA543948 vj69b08.r1 Knowles Solter mouse blastocyst... 147 4e-34  
 W41070, W41070 mc39b06.r1 Soares mouse p3NMF19.5 Mus musculus... 123 5e-27  
 Z31174, MMTEST52 M.musculus expressed sequence tag MTEST52 117 3e-25  
 AA530723, AA530723 vj32f07.r1 Stratagene mouse diaphragm (#93... 74 5e-12  
 AA966940, AA966940 ua38c01.r1 Soares mouse mammary gland NbMM... 72 2e-11  
 AA111079, AA111079 mp50e01.r1 Barstead MPLRB1 Mus musculus cD... 44 0.004  
 AA049187, AA049187 mj51a02.r1 Soares mouse embryo NbME13.5 14... 36 0.99  
 AA058246, AA058246 mg74e12.r1 Soares mouse embryo NbME13.5 14... 36 0.99  
 AA153730, AA153730 mq60a02.r1 Soares 2NbMT Mus musculus cDNA ... 36 0.99  
 AA473959, AA473959 vd02b12.s1 Knowles Solter mouse 2 cell Mus... 36 0.99  
 W47887, W47887 mc83h09.r1 Soares mouse embryo NbME13.5 14.5 M... 36 0.99  
 AA033312, AA033312 mi43g01.r1 Soares mouse embryo NbME13.5 14... 36 0.99  
 AA980820, AA980820 ua46a04.r1 Soares mouse mammary gland NbMM... 36 0.99  
 Z31139, MMTEST427 M.musculus expressed sequence tag MTEST427 36 0.99  
 C76637, C76637 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 34 3.9  
 AI049314, AI049314 uc87b10.y1 Sugano mouse kidney mkia Mus mu... 34 3.9  
 AA670807, AA670807 vs70b02.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA727571, AA727571 vv01h11.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA571966, AA571966 vg12f07.r1 Soares mouse NbMH Mus musculus ... 34 3.9  
 W37059, W37059 mb73f10.r1 Soares mouse p3NMF19.5 Mus musculus... 34 3.9  
 AA760280, AA760280 vv74h11.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA799036, AA799036 vn40c12.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA432831, AA432831 vf28g07.r1 Knowles Solter mouse 8 cell Mus... 34 3.9  
 AA562435, AA562435 vk98c01.r1 Knowles Solter mouse blastocyst... 34 3.9  
 AA726680, AA726680 vu93g12.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA217464, AA217464 mu87d11.r1 Soares mouse lymph node NbMLN M... 34 3.9  
 AA790564, AA790564 vx71e06.r1 Stratagene mouse skin (#937313)... 34 3.9  
 AA033172, AA033172 mi37f06.r1 Soares mouse embryo NbME13.5 14... 34 3.9  
 AA616204, AA616204 vo96h02.r1 Soares mouse mammary gland NbMM... 34 3.9  
 AA982055, AA982055 ua37h05.r1 Soares mouse mammary gland NbMM... 34 3.9  
 W47850, W47850 mc82h10.r1 Soares mouse embryo NbME13.5 14.5 M... 34 3.9  
 AA537538, AA537538 vk48c12.r1 Soares mouse mammary gland NbMM... 34 3.9  
 AA636986, AA636986 vn05f04.r1 Knowles Solter mouse blastocyst... 34 3.9

AI043768, AI043768 UI-R-C0-jm-d-11-0-UI.s1 UI-R-C0 Rattus nor... 174 1e-42  
 AA531635, AA531635 TgESTzz29b08.r1 TgME49 invivo Bradyzoite c... 38 0.22  
 AA944260, AA944260 EST199759 Normalized rat embryo, Bento Soa... 38 0.22  
 AI008930, AI008930 EST203381 Normalized rat embryo, Bento Soa... 36 0.87  
 D15788, RICC1258A Rice cDNA, partial sequence (C1258A). 36 0.87  
~~AA963741, AA963741 UI-R-C0-gt-b-09-0-UI.s1 UI-R-C0 Rattus nor... 36 0.87~~  
 AA951235, AA951235 LD31601.3prime LD Drosophila melanogaster ... 34 3.5  
 C20118, C20118 Rice cDNA, partial sequence (E11542\_2A) 34 3.5  
 AA820317, AA820317 LD23876.5prime LD Drosophila melanogaster ... 34 3.5  
 AA950448, AA950448 LD30237.3prime LD Drosophila melanogaster ... 34 3.5

## SEQ ID NO:559

U83883, RNU83883 Rattus norvegicus p105 coactivator mRNA, com... 42 0.11  
 V00722, MMBGL1 Mouse gene for beta-1-globin. 40 0.45  
 X14061, MMBGCXD M.musculus beta-globin complex DNA for y, bh... 40 0.45  
 U20824, EHVU20824 Equine herpesvirus 2, complete genome 38 1.8  
 U04106, PFU04106 Pleurotus fossulatus D1822, mating group VI,... 38 1.8  
 U04101, POU04101 Pleurotus ostreatus D1742, Japan, mating gro... 38 1.8  
 AC005174, AC005174 Homo sapiens clone UWGC:g1564a012 from 7p1... 38 1.8  
 M18680, HUMRGAPS Homo sapiens 5S rRNA pseudogene. 38 1.8  
 AL022121, MTV025 Mycobacterium tuberculosis H37Rv complete g... 38 1.8  
 AF038379, AF038379 Leishmania amazonensis ribosomal protein S... 38 1.8  
 Z11528, THIGPMR T.harzianum mRNA for imidazoleglycerolphosphate 38 1.8  
 U32622, CTU32622 Comamonas testosteroni TsaR (tsaR), toluenes... 38 1.8  
 U04102, POU04102 Pleurotus ostreatus D1743, Japan, mating gro... 38 1.8  
 U04105, PFU04105 Pleurotus fossulatus D1821, mating group VI,... 38 1.8  
 U04109, PEU04109 Pleurotus eryngii D1832, mating group VI rib... 38 1.8  
 U65606, BSU65606 Basidiomycete from a bamboo (Phyllostachys p... 38 1.8

## HUMAN ESTs

R49969, R49969 yj56c07.s1 Homo sapiens cDNA clone 152748 3' s... 523 e-147  
 AA834501, AA834501 of21c02.s1 NCI\_CGAP\_Kid6 Homo sapiens cDNA... 381 e-104  
 W96422, W96422 ze43a05.s1 Soares retina N2b4HR Homo sapiens c... 315 2e-84  
 R47821, R47821 yj56c07.r1 Homo sapiens cDNA clone 152748 5'. 214 7e-54  
 AA761660, AA761660 nz24b09.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 212 3e-53  
 AA887861, AA887861 nq99b07.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 74 2e-11  
 AA644044, AA644044 nm20b12.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 72 6e-11



AA115963, AA115963 zm78d11.s1 Stratagene neuroepithelium (#93... 40 0.22  
AA779271, AA779271 zj43f02.s1 Soares fetal liver spleen 1NFLS... 40 0.22  
T65600, T65600 yc76a04.r1 Homo sapiens cDNA clone 21496 5'. 38 0.86  
AA515882, AA515882 nf67f10.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 38 0.86  
AA664812, AA664812 nu69b05.s1 NCI\_CGAP\_Alv1 Homo sapiens cDNA... 36 3.4  
~~T83365, T83365 ye03f05.s1 Homo sapiens cDNA clone 116673 3'. 36 3.4~~

---

AA009773, AA009773 zi04d04.s1 Soares fetal liver spleen 1NFLS... 36 3.4  
AA916894, AA916894 og34g10.s1 NCI\_CGAP\_Br7 Homo sapiens cDNA ... 36 3.4  
N27865, N27865 yy02g03.s1 Homo sapiens cDNA clone 270100 3'. 36 3.4  
AA953544, AA953544 om79g06.s1 NCI\_CGAP\_Kid3 Homo sapiens cDNA... 36 3.4  
AA505576, AA505576 nh93f03.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 36 3.4  
H30276, H30276 yp42f05.s1 Homo sapiens cDNA clone 190113 3'. 36 3.4  
AA699914, AA699914 zi61f08.s1 Soares fetal liver spleen 1NFLS... 36 3.4  
AA595583, AA595583 nk92c04.s1 NCI\_CGAP\_Co11 Homo sapiens cDNA... 36 3.4  
AA351139, AA351139 EST58769 Infant brain Homo sapiens cDNA 5'... 36 3.4  
AA810167, AA810167 ob88a03.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 36 3.4  
H50257, H50257 yo28a07.r1 Homo sapiens cDNA clone 179220 5'. 36 3.4  
W19939, W19939 zb37e09.r1 Soares parathyroid tumor NbHPA Homo... 36 3.4  
R19840, R19840 yg30e11.r1 Homo sapiens cDNA clone 33837 5'. 36 3.4  
AA514234, AA514234 nf56e10.s1 NCI\_CGAP\_Co3 Homo sapiens cDNA ... 36 3.4

AA183407, AA183407 ms  
AA821640, AA821640 vw  
AA289310, AA289310

AA900756, AA900756 UI-R-E0-di-d-04-0-UI.s1 UI-R-E0 Rattus nor... 46 0.001  
T18416, T18416 6c02e07t7 etiolated seedling Zea mays cDNA clo... 40 0.069  
AA817427, AA817427 LD22827.5prime LD Drosophila melanogaster ... 36 1.1  
AA274351, AA274351 TgESTzz25c09.s1 TgME49 invivo Bradyzoite c... 36 1.1  
AA391823, AA391823 LD10747.5prime LD Drosophila melanogaster ... 36 1.1  
AA274275, AA274275 TgESTzz24b02.s1 TgME49 invivo Bradyzoite c... 34 4.3  
R86490, R86490 RABEST068T Oryctolagus cuniculus cDNA clone pR... 34 4.3  
AA965817, AA965817 o5g08a1.r1 Aspergillus nidulans 24hr asexu... 34 4.3

SEQ ID NO:560

X81198, L35746, L49403, U21317, Z35640, AL010273, U09850, AF071771, Z96434,

Z50028, X72735, U13072, Z34294, AB002109, X68401, M92840, D88399, Z36238, AF000262, Z46828,

# HUMAN ESTs

---

AA215808, AA215808 zr98b10.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 1082 0.0  
 N75131, N75131 yz29g07.r1 Soares multiple sclerosis 2NbHMSP H... 989 0.0  
 AA709149, AA709149 zf98g05.s1 Soares fetal heart NbHH19W Homo... 985 0.0  
 AA428341, AA428341 zw18f09.s1 Soares ovary tumor NbHOT Homo s... 967 0.0  
 AA043426, AA043426 zk54h09.r1 Soares pregnant uterus NbHPU Ho... 870 0.0  
 AA878521, AA878521 oj19c01.s1 NCI\_CGAP\_Kid5 Homo sapiens cDNA... 844 0.0  
 AA599696, AA599696 ag10h01.s1 Gessler Wilms tumor Homo sapien... 842 0.0  
 W52304, W52304 zc47c08.r1 Soares senescent fibroblasts NbHSF ... 841 0.0  
 AA043427, AA043427 zk54h09.s1 Soares pregnant uterus NbHPU Ho... 769 0.0  
 N64314, N64314 yz46a12.s1 Homo sapiens cDNA clone 286078 3'. 763 0.0  
 N52360, N52360 yz29g07.s1 Soares multiple sclerosis 2NbHMSP H... 753 0.0  
 AA290863, AA290863 zt19a08.s1 Soares ovary tumor NbHOT Homo s... 747 0.0  
 AA768023, AA768023 oa60e03.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 728 0.0  
 AA872018, AA872018 oi05f08.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 718 0.0  
 AA164765, AA164765 zp01g09.s1 Stratagene ovarian cancer (#937... 716 0.0  
 AA814881, AA814881 oa75e02.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 708 0.0  
 R86915, R86915 yq30f07.r1 Homo sapiens cDNA clone 197317 5'. 692 0.0  
 W56703, W56703 zd14e01.r1 Soares fetal heart NbHH19W Homo sap... 642 0.0  
 R84872, R84872 yq27e01.r1 Soares fetal liver spleen 1NFLS Hom... 636 0.0  
 D79691, HUM307D10B Human aorta cDNA 5'-end GEN-307D10. 630 e-179  
 AA025638, AA025638 ze90d11.s1 Soares fetal heart NbHH19W Homo... 626 e-178  
 AA298883, AA298883 EST114512 Pancreas tumor I Homo sapiens cD... 624 e-177  
 R86903, R86903 yq30d07.r1 Homo sapiens cDNA clone 197293 5'. 622 e-176  
 AA033584, AA033584 zk21b12.s1 Soares pregnant uterus NbHPU Ho... 618 e-175  
 AA633335, AA633335 nq58h09.s1 NCI\_CGAP\_Co9 Homo sapiens cDNA ... 611 e-173  
 AA298894, AA298894 EST114513 Pancreas tumor I Homo sapiens cD... 599 e-169  
 R85806, R85806 yq27e01.s1 Soares fetal liver spleen 1NFLS Hom... 595 e-168  
 AA872617, AA872617 oi05g07.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 591 e-167  
 H71458, H71458 yu71a06.s1 Homo sapiens cDNA clone 239218 3'. 587 e-166  
 AA291045, AA291045 zt19a08.r1 Soares ovary tumor NbHOT Homo s... 563 e-159  
 H71587, H71587 yu71a06.r1 Homo sapiens cDNA clone 239218 5'. 543 e-153  
 AA035172, AA035172 zk28g05.s1 Soares pregnant uterus NbHPU Ho... 523 e-147  
 AA164764, AA164764 zp01g09.r1 Stratagene ovarian cancer (#937... 517 e-145  
 AA297001, AA297001 EST112550 Adipose tissue, white II Homo sa... 502 e-140  
 AA296816, AA296816 EST112381 Aorta endothelial cells Homo sap... 500 e-139  
 AA769090, AA769090 oa74e12.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 494 e-138  
 H54447, H54447 yq91f04.s1 Homo sapiens cDNA clone 203167 3'. 438 e-121  
 H54537, H54537 yq91f04.r1 Homo sapiens cDNA clone 203167 5'. 436 e-120  
 AI049757, AI049757 an26g03.x1 Gessler Wilms tumor Homo sapien... 430 e-119

AA033583, AA033583 zk21b12.r1 Soares pregnant uterus NbHPU Ho... 422 e-116  
D61748, HUM205G02B Human aorta cDNA 5'-end GEN-205G02. 412 e-113  
AA148635, AA148635 zl26d10.r1 Soares pregnant uterus NbHPU Ho... 377 e-102  
AA148636, AA148636 zl26d10.s1 Soares pregnant uterus NbHPU Ho... 373 e-101  
AA025637, AA025637 ze90d11.r1 Soares fetal heart NbHH19W Homo... 371 e-101  
AA932620, AA932620 oo61h04.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA 365 4e-99  
AA385594, AA385594 EST99296 Thyroid Homo sapiens cDNA 5' end 339 2e-91  
AA361957, AA361957 EST71295 T-cell lymphoma Homo sapiens cDNA... 289 2e-76  
AA383998, AA383998 EST97483 Thyroid Homo sapiens cDNA 5' end ... 274 1e-71  
H22175, H22175 yl38a03.r1 Homo sapiens cDNA clone 160492 5'. 256 3e-66  
R50060, R50060 yj59c10.r1 Homo sapiens cDNA clone 153042 5'. 256 3e-66  
AA229414, AA229414 nc47f12.r1 NCI\_CGAP\_Pr3 Homo sapiens cDNA ... 246 3e-63  
D20466, HUMGS01440 Human HL60 3'directed MboI cDNA, HUMGS014... 208 6e-52  
AA249061, AA249061 ll4438.seq.F Human fetal heart, Lambda ZAP... 168 5e-40  
R86758, R86758 yq30f07.s1 Homo sapiens cDNA clone 197317 3'. 147 2e-33  
R58025, R58025 F8018 Fetal heart Homo sapiens cDNA clone F801... 101 1e-19  
AA371076, AA371076 EST82846 Prostate gland I Homo sapiens cDN... 42 0.081  
AA977111, AA977111 oq24c03.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 40 0.32  
AA608923, AA608923 af03b04.s1 Soares testis NHT Homo sapiens ... 38 1.3

gb|AA386999|AA386999 vc81b02.r1 Ko mouse embryo 11 5dpc Mus mus... 668 0.0  
gb|AA589082|AA589082 vk24a08.r1 Knowles Solter mouse blastocyst... 658 0.0  
gb|AA510881|AA510881 vh59c11.r1 Soares mouse mammary gland NbMM... 617 e-175  
gb|AA763574|AA763574 vp07e08.r1 Soares mouse mammary gland NbMM... 615 e-174  
gb|AA387423|AA387423 vc84b03.r1 Ko mouse embryo 11 5dpc Mus mus... 549 e-155  
gb|AA915333|AA915333 vz28f05.r1 Soares 2NbMT Mus musculus cDNA ... 543 e-153  
gb|AA816208|AA816208 vp43c10.r1 Barstead mouse irradiated colon... 444 e-123  
gb|AA190043|AA190043 mt91h08.r1 Soares mouse lymph node NbMLN M... 424 e-117  
gb|AA207393|AA207393 mv89c09.r1 GuayWoodford Beier mouse kidney... 394 e-108  
emb|Z31258|MMTEST693 M.musculus expressed sequence tag MTEST693 309 8e-83  
gb|AA930143|AA930143 vz52d11.s1 Soares 2NbMT Mus musculus cDNA ... 293 5e-78  
gb|AA170612|AA170612 ms92c09.r1 Soares mouse 3NbMS Mus musculus... 287 3e-76  
gb|AA762238|AA762238 vw58h02.r1 Soares mouse mammary gland NMLM... 266 1e-69  
gb|AA689028|AA689028 vs02c12.r1 Barstead mouse irradiated colon... 264 4e-69  
gb|AA959938|AA959938 vw58h02.s1 Soares mouse mammary gland NMLM... 240 6e-62  
dbj|D18511|MUSGS01569 Mouse 3'-directed cDNA, MUSGS01569, clon... 172 1e-41  
gb|AA474393|AA474393 vd57g07.r1 Knowles Solter mouse blastocyst... 100 1e-19  
gb|W97165|W97165 mf90g05.r1 Soares mouse embryo NbME13.5 14.5 M... 74 8e-12  
gb|AA512077|AA512077 vj43f05.r1 Stratagene mouse skin (#937313)... 62 3e-08  
gb|AA794521|AA794521 vu68e07.r1 Stratagene mouse skin (#937313)... 54 8e-06  
gb|AA155454|AA155454 mn38h12.r1 Beddington mouse embryonic regi... 48 5e-04  
gb|W91000|W91000 mf83f06.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.12

gb|AA219917|AA219917 mv62f05.r1 Soares mouse 3NME12 5 Mus muscu... 38 0.45  
 gb|AA529349|AA529349 vi35f08.r1 Beddington mouse embryonic regi... 36 1.8  
 gb|AA754855|AA754855 vu51e08.r1 Soares mouse mammary gland NbMM... 36 1.8

---

gb|AA850379|AA850379 EST193146 Normalized rat ovary, Bento Soar... 569 e-161  
 gb|W63375|W63375 TgESTzy68g02.r1 TgME49 Tachyzoite cDNA Toxopla... 394 e-108  
 gb|AA946379|AA946379 EST201878 Normalized rat lung, Bento Soare... 353 5e-96  
 gb|AA964427|AA964427 UI-R-E1-gp-a-08-0-UI.s1 UI-R-E1 Rattus nor... 335 1e-90  
 gb|AA849599|AA849599 EST192366 Normalized rat muscle, Bento Soa... 307 3e-82  
 gb|AA849595|AA849595 EST192362 Normalized rat muscle, Bento Soa... 307 3e-82  
 gb|AA850378|AA850378 EST193145 Normalized rat ovary, Bento Soar... 278 3e-73  
 gb|AA957389|AA957389 UI-R-E1-fu-b-04-0-UI.s1 UI-R-E1 Rattus nor... 157 6e-37  
 gb|AI012981|AI012981 EST207432 Normalized rat spleen, Bento Soa... 147 6e-34  
 dbj|C48357|C48357 C.elegans cDNA clone yk469b2 : 5' end, single... 40 0.10  
 gb|AA440444|AA440444 LD15290.5prime LD Drosophila melanogaster ... 36 1.6  
 dbj|C22690|C22690 Rice cDNA, partial sequence (S5274\_4A) 36 1.6  
 gb|AA697626|AA697626 HL02895.5prime HL Drosophila melanogaster ... 36 1.6  
 gb|AA550136|AA550136 1244m3 gmbPfHB3.1, G. Roman Reddy Plasmodi... 36 1.6  
 gb|T43579|T43579 6842 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.6  
 gb|AI030501|AI030501 UI-R-C0-jc-g-02-0-UI.s1 UI-R-C0 Rattus nor... 36 1.6  
 gb|AA056876|AA056876 SWMFC A987SK Brugia malayi microfilaria cDN... 36 1.6  
 gb|AA440689|AA440689 LD15550.5prime LD Drosophila melanogaster ... 36 1.6

SEQ ID NO:561

emb|Z47552|HSFMO3 H.sapiens mRNA for flavin-containing monooxyg... 44 0.10  
 gb|U39966|HSFMO3G7 Homo sapiens flavin containing monooxygenase... 44 0.10  
 emb|AL021026|HS127D3 Homo sapiens DNA sequence from PAC 127D3 o... 44 0.10  
 gb|U35007|CPU35007 Carcharhinus plumbeus Ig lambda light chain ... 44 0.10  
 gb|U35008|CPU35008 Carcharhinus plumbeus Ig lambda light chain ... 44 0.10  
 dbj|D85068|RICT3A Rice transposable element T3 gene and ret... 42 0.40  
 dbj|D63711|RICT3 Rice transposon T3 DNA, complete sequence 42 0.40  
 gb|U01657|U01657 Carcharhinus plumbeus Ig lambda-chain gene, co... 42 0.40  
 emb|Z92540|HS179I15A Human DNA sequence from PAC 179I15, BRCA2 ... 40 1.6  
 dbj|AB001569|AB001569 Carrot DNA for transposon Tdc1 40 1.6  
 gb|AE000613|HPAE000613 Helicobacter pylori section 91 of 134 of... 40 1.6  
 emb|X07985|DMCUT Drosophila cut locus mRNA for homeodomain-cont... 40 1.6  
 gb|AC005217|AC005217 Homo sapiens chromosome 5, P1 clone 1047D6... 40 1.6

HUMAN ESTs

gb|AA401219|AA401219 zv63a03.r1 Soares total fetus Nb2HF8 9w Ho... 993 0.0  
 gb|H69371|H69371 yu19h09.r1 Homo sapiens cDNA clone 234305 5' s... 44 0.049  
 gb|N62576|N62576 za13d10.s1 Homo sapiens cDNA clone 292435 3' s... 42 0.19  
 gb|W77763|W77763 zd69c06.r1 Soares fetal heart NbHH19W Homo sap... 40 0.77  
 gb|R14832|R14832 yf93g05.r1 Homo sapiens cDNA clone 30203 5'. 40 0.77  
 gb|T90524|T90524 vd40a04.s1 Homo sapiens cDNA clone 110670 3' s... 38 3.0  


---

 gb|R91887|R91887 yq04c09.r1 Homo sapiens cDNA clone 195952 5'. 38 3.0  
 gb|AA586935|AA586935 nn68h03.s1 NCI\_CGAP\_Lar1 Homo sapiens cDNA... 38 3.0  
 gb|T46987|T46987 yb12a07.s1 Homo sapiens cDNA clone 70932 3' co... 38 3.0  
 gb|AA853975|AA853975 aj51f09.s1 Soares testis NHT Homo sapiens ... 38 3.0  
 gb|T97059|T97059 ye50e01.r1 Homo sapiens cDNA clone 121176 5'. 38 3.0  
 gb|AA883119|AA883119 am15h02.s1 Soares NFL T GBC S1 Homo sapien... 38 3.0  
 gb|AA860074|AA860074 ak45b06.s1 Soares testis NHT Homo sapiens ... 38 3.0  
 gb|AA889618|AA889618 ak28f06.s1 Soares\_testis\_NHT Homo sapiens ... 38 3.0  
  
 gb|AA230450|AA230450 mv73c06.r1 Soares mouse 3NME12 5 Mus muscu... 38 1.1  
 gb|AA058041|AA058041 mj58e08.r1 Soares mouse embryo NbME13.5 14... 38 1.1  
 gb|AA152953|AA152953 mq54a03.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.1  
 gb|W34414|W34414 ma98b07.r1 Soares mouse p3NMF19.5 Mus musculus... 38 1.1  
 gb|AA465969|AA465969 ve90c06.s1 Knowles Solter mouse 2 cell Mus... 38 1.1  
 gb|AA261173|AA261173 mz62b11.r1 Soares mouse lymph node NbMLN M... 38 1.1  
 gb|AA238109|AA238109 mw97b05.r1 Soares mouse NML Mus musculus c... 38 1.1  
 dbj|C86549|C86549 Mus musculus fertilized egg cDNA 3'-end seque... 38 1.1  
 gb|AI048677|AI048677 ub29g09.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.1  
 dbj|D77921|MUSC1A08 Mouse embryonal carcinoma F9 cell cDNA, C1A08 38 1.1  
 gb|AA396183|AA396183 vb45e04.r1 Soares mouse lymph node NbMLN M... 38 1.1  
 gb|AA465898|AA465898 vc62f12.s1 Knowles Solter mouse 2 cell Mus... 36 4.3  
 gb|AA041869|AA041869 mj05b12.r1 Soares mouse embryo NbME13.5 14... 36 4.3  
 gb|AA637824|AA637824 vr21f11.r1 Barstead mouse myotubes MPLRB5 ... 36 4.3  
 gb|W82563|W82563 mf05g06.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.3  
 gb|AA389972|AA389972 vb30e03.r1 Soares mouse lymph node NbMLN M... 36 4.3  
 gb|AA396253|AA396253 vb45f08.r1 Soares mouse lymph node NbMLN M... 36 4.3  
 gb|AA920907|AA920907 vy84f04.r1 Stratagene mouse macrophage (#9... 36 4.3  
 gb|AA517166|AA517166 vh98h05.r1 Barstead mouse myotubes MPLRB5 ... 36 4.3  
 gb|AA433599|AA433599 vf47a05.r1 Soares mouse NbMH Mus musculus ... 36 4.3  
 gb|AA867252|AA867252 vx25c01.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.3  
 dbj|C85619|C85619 Mus musculus fertilized egg cDNA 3'-end seque... 36 4.3  
 gb|AA260277|AA260277 va93g05.r1 Soares mouse 3NME12 5 Mus muscu... 36 4.3  
 gb|AA172548|AA172548 mt04g11.r1 Soares mouse 3NbMS Mus musculus... 36 4.3  
 gb|AA266879|AA266879 mz96a02.r1 Soares mouse lymph node NbMLN M... 36 4.3  
 gb|AA473019|AA473019 vd43e06.r1 Barstead MPLRB1 Mus musculus cD... 36 4.3

gb|R47549|R47549 SW3ICA119SK *Brugia malayi* infective larva cDNA... 40 0.24  
 gb|H32651|H32651 EST107947 Rat PC-12 cells, untreated *Rattus* sp... 38 0.96  
 gb|AA955987|AA955987 UI-R-E1-fb-f-06-0-UI.s1 UI-R-E1 *Rattus* nor... 38 0.96  
 gb|AA819638|AA819638 UI-R-A0-an-f-03-0-UI.s1 UI-R-A0 *Rattus* nor... 38 0.96  
 gb|AI010914|AI010914 EST205365 Normalized rat muscle, Bento Soa... 38 0.96  
 gb|AA893199|AA893199 EST197002 Normalized rat kidney, Bento Soa... 38 0.96  
 gb|AA945176|AA945176 EST200675 Normalized rat liver, Bento Soar... 38 0.96  
 gb|R95272|R95272 SWOvL3CA167SK *Onchocerca volvulus* infective la... 36 3.8  
 gb|AA917208|AA917208 ka05f02.s1 *Onchocerca volvulus* infective l... 36 3.8  
 dbj|C62023|C62023 *C.elegans* cDNA clone yk249d5 : 5' end, single... 36 3.8  
 gb|AI013322|AI013322 EST207997 Normalized rat spleen, Bento Soa... 36 3.8  
 gb|AI043280|AI043280 TENU0920 *T. cruzi* epimastigote normalized ... 36 3.8  
 gb|AI009422|AI009422 EST203873 Normalized rat heart, Bento Soar... 36 3.8  
 gb|AI012655|AI012655 EST207106 Normalized rat placenta, Bento S... 36 3.8  
 dbj|C62878|C62878 *C.elegans* cDNA clone yk296d4 : 5' end, single... 36 3.8  
 gb|AA915818|AA915818 SWOvL3CA1269SK *Onchocerca volvulus* infecti... 36 3.8  
 gb|W00009|W00009 TgESTzy75b07.r1 TgRH Tachyzoite cDNA *Toxoplasma*... 36 3.8  
 gb|AA943503|AA943503 EST199002 Normalized rat brain, Bento Soar... 36 3.8  
 gb|AA956933|AA956933 UI-R-E1-fl-b-08-0-UI.s1 UI-R-E1 *Rattus* nor... 36 3.8  
 gb|H54977|H54977 HHU16a *Sorghum bicolor* cv. TX430 *Sorghum bicol*... 36 3.8

SEQ ID NO:562

gb|AC000112|HSAC000112 Human PAC clone DJ149P21, complete seque... 44 0.082  
 gb|U50197|CELF25E2 *Caenorhabditis elegans* cosmid F25E2. 44 0.082  
 dbj|AB007727|AB007727 *Arabidopsis thaliana* genomic DNA, chromos... 44 0.082  
 gb|U02562|BSU02562 *Bacillus subtilis* N-acetylglucosaminidase (l... 42 0.32  
 dbj|D45048|BACORFX *Bacillus subtilis* gene for beta-N-acetylgluc... 42 0.32  
 emb|Z70683|CEF13B12 *Caenorhabditis elegans* cosmid F13B12, compl... 40 1.3  
 emb|AL023828|CEY17G7B *Caenorhabditis elegans* cosmid Y17G7B, com... 40 1.3  
 gb|U39740|CELZC64 *Caenorhabditis elegans* cosmid ZC64. 40 1.3  
 gb|AF006490|AF006490 *Gossypium hirsutum* adenine nucleotide tran... 40 1.3  
 emb|AL010170|PFSC03098 *Plasmodium falciparum* DNA \*\*\* SEQUENCING... 40 1.3  
 gb|U53701|GHU53701 *Gossypium hirsutum* alcohol dehydrogenase 2d ... 40 1.3

#### HUMAN ESTs

gb|AA670455|AA670455 ae62h05.s1 Stratagene lung carcinoma 93721... 852 0.0  
 gb|AA251062|AA251062 zs07c10.r1 NCI\_CGAP\_GCB1 *Homo sapiens* cDNA... 795 0.0

gb|AA669916|AA669916 ag42h08.s1 Jia bone marrow stroma Homo sap... 638 0.0  
 gb|AA300058|AA300058 EST12665 Uterus tumor I Homo sapiens cDNA ... 587 e-165  
 gb|AA664277|AA664277 ac08c05.s1 Stratagene HeLa cell s3 937216 ... 549 e-154  
 gb|AA373224|AA373224 EST85230 HSC172 cells I Homo sapiens cDNA ... 529 e-148  
 gb|AA225705|AA225705 nc10b05.r1 NCI\_CGAP\_Pr1 Homo sapiens cDNA ... 515 e-144  
 gb|W27883|W27883 39b10 Human retina cDNA randomly primed sublib... 484 e-134  


---

 gb|R24643|R24643 yh36g05.r1 Homo sapiens cDNA clone 131864 5'. 438 e-121  
 gb|N93137|N93137 zb28h06.s1 Homo sapiens cDNA clone 304955 3'. 432 e-119  
 gb|AA250933|AA250933 zs07d01.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 426 e-117  
 gb|AA216370|AA216370 nc10b05.s1 NCI\_CGAP\_Pr1 Homo sapiens cDNA ... 398 e-109  
 gb|H26939|H26939 yl64g01.r1 Homo sapiens cDNA clone 163056 5'. 394 e-108  
 gb|H30169|H30169 yo58g09.r1 Homo sapiens cDNA clone 182176 5'. 394 e-108  
 gb|W38854|W38854 zb28h06.r1 Soares parathyroid tumor NbHPA Homo... 359 5e-97  
 gb|AA602297|AA602297 np25a11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 281 1e-73  
 gb|AA167151|AA167151 zp06e09.r1 Stratagene ovarian cancer (#937... 256 6e-66  
 gb|AA172387|AA172387 zo99d03.s1 Stratagene ovarian cancer (#937... 234 2e-59  
 gb|AA173748|AA173748 zo99d03.r1 Stratagene ovarian cancer (#937... 224 2e-56  
 gb|T83979|T83979 yd66a11.s1 Homo sapiens cDNA clone 113180 3'. 220 3e-55  
 dbj|D61540|HUM415A08B Human fetal brain cDNA 5'-end GEN-415A08. 194 2e-47  
 gb|N45148|N45148 yv25a05.r1 Homo sapiens cDNA clone 243728 5'. 165 2e-38  
 gb|AA642960|AA642960 60f07.s1 NCI\_CGAP\_Lym3 Homo sapiens cDNA... 147 4e-33  
 gb|R90980|R90980 yp93a03.r1 Homo sapiens cDNA clone 194956 5' s... 40 0.62  
 gb|AA521500|AA521500 aa73h08.s1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 40 0.62  
 gb|H82921|H82921 yq46h10.s1 Homo sapiens cDNA clone 198883 3' s... 40 0.62  
 gb|AA294871|AA294871 EST100023 Pancreas tumor I Homo sapiens cD... 38 2.4  
 dbj|D63191|HUM503F11B Human placenta cDNA 5'-end GEN-503F11. 38 2.4  
 gb|AA211096|AA211096 zq89g01.s1 Stratagene hNT neuron (#937233)... 38 2.4  
  
 gb|AA840137|AA840137 ud01e08.r1 Soares mouse uterus NMPu Mus mu... 383 e-104  
 gb|AA145994|AA145994 mr13h04.r1 Soares mouse 3NbMS Mus musculus... 345 3e-93  
 gb|AA146365|AA146365 mr05d05.r1 Soares mouse 3NbMS Mus musculus... 236 2e-60  
 gb|AA203902|AA203902 mu60f02.r1 Soares mouse lymph node NbMLN M... 236 2e-60  
 gb|AA204516|AA204516 mu66c10.r1 Soares mouse lymph node NbMLN M... 182 2e-44  
 gb|AA137343|AA137343 mq80g08.r1 Stratagene mouse melanoma (#937... 52 6e-05  
 gb|AA174717|AA174717 ms67a01.r1 Soares mouse 3NbMS Mus musculus... 48 0.001  
 gb|W34073|W34073 ma85d10.r1 Soares mouse p3NMF19.5 Mus musculus... 48 0.001  
 gb|AA289493|AA289493 vb36b01.r1 Soares mouse lymph node NbMLN M... 48 0.001  
 gb|AA177700|AA177700 mt33e12.r1 Soares mouse 3NbMS Mus musculus... 48 0.001  
 gb|AA146021|AA146021 mr13e03.r1 Soares mouse 3NbMS Mus musculus... 48 0.001  
 gb|AA155352|AA155352 mn43d09.r1 Beddington mouse embryonic regi... 46 0.004  
 gb|AA880874|AA880874 vx33b02.r1 Stratagene mouse lung 937302 Mu... 42 0.056

gb|AA590520|AA590520 vi54b08.r1 Beddington mouse embryonic regi... 38 0.88  
 gb|AA596629|AA596629 vm56e06.r1 Stratagene mouse Tcell 937311 M... 38 0.88  
 dbj|D76657|MUS75H09 Mouse embryonal carcinoma F9 cell cDNA, 75H09 38 0.88  
 gb|AA050336|AA050336 mj12f05.r1 Soares mouse embryo NbME13.5 14... 38 0.88  
 gb|AA120196|AA120196 mn35a12.r1 Beddington mouse embryonic regi... 38 0.88  
 gb|W85267|W85267 mf42c06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.5  


---

 gb|AA239372|AA239372 my38f03.r1 Barstead mouse pooled organs MP... 36 3.5  
 gb|AA497891|AA497891 vi73c07.r1 Stratagene mouse testis (#93730... 36 3.5  
 gb|AA673053|AA673053 vn45e05.r1 Barstead mouse myotubes MPLRB5 ... 36 3.5  
 emb|Z36324|MM224 M.musculus mRNA (clone 224) for expressed sequ... 36 3.5  
 gb|AI021128|AI021128 ub01f06.r1 Soares mouse mammary gland NbMM... 36 3.5  
 gb|AA403424|AA403424 mz56f07.r1 Barstead mouse pooled organs MP... 36 3.5  
 gb|W66683|W66683 me23g11.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.5  
 gb|AA689022|AA689022 vs02c03.r1 Barstead mouse irradiated colon... 36 3.5  
 gb|AA574590|AA574590 vn63h11.r1 Barstead mouse proximal colon M... 36 3.5

dbj|C90696|C90696 Dictyostelium discoideum slug cDNA, clone SSJ634 38 0.78  
 gb|AA269052|AA269052 MA1MA052.AA3 S. mansoni adult Lambda Zap S... 38 0.78  
 gb|AA998786|AA998786 UI-R-C0-im-e-11-0-UI.s1 UI-R-C0 Rattus nor... 38 0.78  
 gb|H33464|H33464 EST109494 Rat PC-12 cells, NGF-treated (9 days... 38 0.78  
 gb|AA390721|AA390721 LD09459.5prime LD Drosophila melanogaster ... 36 3.1  
 dbj|C83908|C83908 Dictyostelium discoideum slug cDNA, clone SSA567 36 3.1  
 gb|AA202425|AA202425 LD02606.5prime LD Drosophila melanogaster ... 36 3.1  
 gb|AI030951|AI030951 UI-R-C0-jf-d-04-0-UI.s1 UI-R-C0 Rattus nor... 36 3.1  
 gb|N60251|N60251 TgESTzy11d04.r1 TgRH Tachyzoite cDNA Toxoplasm... 36 3.1  
 gb|AA246875|AA246875 LD05855.5prime LD Drosophila melanogaster ... 36 3.1  
 gb|AA803682|AA803682 GM13955.5prime GM Drosophila melanogaster ... 36 3.1  
 gb|AA997528|AA997528 UI-R-C0-hw-h-11-0-UI.s1 UI-R-C0 Rattus nor... 36 3.1  
 gb|AA695197|AA695197 GM02389.5prime GM Drosophila melanogaster ... 36 3.1  
 gb|AA567339|AA567339 HL01077.5prime HL Drosophila melanogaster ... 36 3.1  
 gb|AA950648|AA950648 LD30547.5prime LD Drosophila melanogaster ... 36 3.1

SEQ ID NO:563

**substantially identical to D86956**

SEQ ID NO:564



gb|AC004505|AC004505 Homo sapiens chromosome 20, P1 clone 86C1 ... 176 1e-41  
 gb|S78798|S78798 1-phosphatidylinositol-4-phosphate 5-kinase is... 115 4e-23  
 gb|U48696|HSU48696 Human mariner-like element-containing mRNA, ... 115 4e-23  
 gb|U66300|LEU66300 Lycopersicon esculentum heat shock protein (... 115 4e-23  
 gb|AF045432|AF045432 Danio rerio stem cell leukemia protein (ta... 111 6e-22  
 emb|Z97178|BVRNAEF2 Beta vulgaris cDNA for elongation factor 2 107 9e-21  
 gb|U39066|MMU39066 Murine MAP kinase kinase 6c mRNA, complete cds. 101 6e-19  
 gb|U37573|XXU37573 Shuttle expression vector pBKCMV. 96 4e-17  
 gb|AF033097|AF033097 Avena sativa nonphototropic hypocotyl 1 (N... 90 2e-15  
 gb|AF027174|AF027174 Arabidopsis thaliana cellulose synthase ca... 86 3e-14  
 gb|U65376|CFU65376 Canis familiaris rod photoreceptor transduci... 84 1e-13  
 gb|AF033565|AF033565 Mus musculus cdc2/CDC28-like protein kinas... 82 5e-13  
 emb|Z49980|HS2AMCP H.sapiens mRNA for ets-like protein (clone 7... 82 5e-13  
 emb|AJ001103|LLARCAB Lactococcus lactis arcA and arcB genes 80 2e-12  
 gb|U52868|CFU52868 Canis familiaris retinal cyclic-GMP phosphod... 80 2e-12  
 gb|G29058|G29058 chicken STS ADL368 76 3e-11  
 gb|G29060|G29060 chicken STS ADL352 76 3e-11  
 gb|U34048|HDU34048 Haemophilus ducreyi hemoglobin-binding prote... 76 3e-11  
 gb|U44386|SLU44386 Solanum lycopersicum heat shock protein (TFH... 68 8e-09  
 gb|S83098|S83098 ribosomal protein S3 [Ambystoma mexicanum=Mexi... 66 3e-08  
 gb|U48697|HSU48697 Human mariner-like element-containing mRNA, ... 60 2e-06  
 gb|AF033096|AF033096 Avena sativa nonphototropic hypocotyl 1 (N... 60 2e-06  
 en.b|X99051|LLATTMSAT L.lagopus ATT microsatellite, locus LLST1 58 8e-06  
 gb|U41811|HAU41811 Homarus americanus beta-I tubulin mRNA, comp... 46 0.029  
 emb|X99055|LLCAMSAT1 L.lagopus CA microsatellite, locus LLSD5 44 0.12  
 emb|X65215|BTMISATN B.taurus microsatellite DNA (624bp) 44 0.12  
 gb|AE001023|AE001023 Archaeoglobus fulgidus section 84 of 172 o... 42 0.46  
 emb|X80164|HSPDCM4 H.salinarium phage dcm4 Virus DNA 42 0.46  
 emb|X87859|MTCMAJ12S C.major mitochondrial gene for 12S ribosom... 42 0.46  
 emb|X87861|MTCPAL12S C.pallidus mitochondrial gene for 12S ribo... 42 0.46  
 gb|L13767|STMSEC101A Streptomyces lividans sec101 gene, 5' end p... 42 0.46  
 emb|Y08962|OSTRAMBPR O.sativa mRNA for transmembrane protein >g... 40 1.8  
 gb|S65686|S65686 {multiple cloning sites, vector} [bacteriophag... 40 1.8  
 gb|J02871|HUMCP45IV Human lung cytochrome P450 (IV subfamily) B... 40 1.8  
 dbj|D10450|HUMRTVE Human genomic DNA, retrovirus-like element 40 1.8  
 gb|S65683|S65683 {multiple cloning sites, vector} [bacteriophag... 40 1.8  
 gb|L14950|PIGALDRED Sus scrofa aldose reductase mRNA, complete ... 40 1.8  
 gb|S65693|S65693 {multiple cloning sites, vector} [bacteriophag... 40 1.8  
 gb|S65694|S65694 {multiple cloning sites, vector} [bacteriophag... 40 1.8  
 emb|AJ223292|SPAJ3292 Streptococcus pyogenes SOD gene, complete... 40 1.8  
 gb|U25846|HAU25846 Homarus americanus clone LOB5 farnesoic acid... 40 1.8  
 emb|X16699|HSP450P2 Human mRNA for cytochrome P-450HP 40 1.8  
 gb|U37100|HSU37100 Homo sapiens aldose reductase-like peptide m... 40 1.8

## HUMAN ESTs

gb|AA305996|AA305996 EST177003 Jurkat T-cells VI Homo sapiens c... 942 0.0  
 gb|AA975279|AA975279 oq36e08.s1 NCI\_CGAP\_GC4 Homo sapiens cDNA ... 900 0.0  
 gb|AA426359|AA426359 zw11b02.r1 Soares NhHMPu S1 Homo sapiens c... 868 0.0  
 gb|AA424296|AA424296 zv90b08.r1 Soares NhHMPu S1 Homo sapiens c... 749 0.0  
 gb|AA632259|AA632259 np67d04.s1 NCI\_CGAP\_Br2 Homo sapiens cDNA ... 730 0.0  
 gb|H80377|H80377 yu59e01.r1 Homo sapiens cDNA clone 230424 5'. 658 0.0  
 gb|AA515175|AA515175 ng68f10.s1 NCI\_CGAP\_Lip2 Homo sapiens cDNA... 615 e-174  
 gb|AA351770|AA351770 EST59616 Infant brain Homo sapiens cDNA 5'... 611 e-172  
 gb|AA426522|AA426522 zw11b02.s1 Soares NhHMPu S1 Homo sapiens c... 587 e-165  
 gb|AA676220|AA676220 zi22a12.s1 Soares fetal liver spleen 1NFLS... 585 e-165  
 gb|R35132|R35132 yg60e09.r1 Homo sapiens cDNA clone 36874 5'. 579 e-163  
 gb|H80280|H80280 yu59e01.s1 Homo sapiens cDNA clone 230424 3'. 579 e-163  
 gb|H81145|H81145 yu60e01.r1 Homo sapiens cDNA clone 230520 5'. 561 e-157  
 gb|AA311105|AA311105 EST18187 Heart I Homo sapiens cDNA 5' end 533 e-149  
 gb|AA380530|AA380530 EST93691 Supt cells Homo sapiens cDNA 5' end 527 e-147  
 gb|H81050|H81050 yu60e01.s1 Homo sapiens cDNA clone 230520 3'. 500 e-139  
 gb|AA460005|AA460005 zx49g07.s1 Soares testis NHT Homo sapiens ... 482 e-134  
 gb|AA076450|AA076450 zm91d12.r1 Stratagene ovarian cancer (#937... 466 e-129  
 gb|N43873|N43873 yy43e09.r1 Homo sapiens cDNA clone 274024 5'. 452 e-125  
 gb|AA076451|AA076451 zm91d12.s1 Stratagene ovarian cancer (#937... 418 e-115  
 gb|AA907095|AA907095 ol03b12.s1 NCI\_CGAP\_Lu5 Homo sapiens cDNA ... 414 e-113  
 gb|W01027|W01027 za56g07.r1 Soares fetal liver spleen 1NFLS Hom... 262 1e-67  
 gb|AA127183|AA127183 zn29d11.r1 Stratagene neuroepithelium NT2R... 222 1e-55  
 gb|H65491|H65491 yr56a08.s1 Homo sapiens cDNA clone 209270 3'. 222 1e-55  
 gb|N48543|N48543 yy49d08.r1 Homo sapiens cDNA clone 276879 5'. 210 4e-52  
 gb|R32579|R32579 yh54h06.r1 Homo sapiens cDNA clone 133595 5'. 194 2e-47  
 gb|AA247827|AA247827 j0778.seq.F Human fetal heart, Lambda ZAP ... 117 5e-24  
 N84048, (many others similar, but smaller)

gb|AA589598|AA589598 vl49d08.s1 Stratagene mouse skin (#937313)... 398 e-109  
 gb|AA647465|AA647465 vq82f02.s1 Knowles Solter mouse 2 cell Mus... 385 e-105  
 gb|AA510284|AA510284 vh58f02.r1 Soares mouse mammary gland NbMM... 345 4e-93  
 gb|AA028696|AA028696 mi12e12.r1 Soares mouse p3NMF19.5 Mus musc... 307 9e-82  
 gb|N28081|N28081 MDB1409R Mouse brain, Stratagene Mus musculus ... 244 1e-62  
 gb|AA177452|AA177452 mt24c12.r1 Soares mouse 3NbMS Mus musculus... 226 3e-57  
 gb|N28080|N28080 MDB1409 Mouse brain, Stratagene Mus musculus c... 226 3e-57  
 dbj|C88310|C88310 Mus musculus fertilized egg cDNA 3'-end seque... 226 3e-57  
 gb|AA763786|AA763786 vo99g12.r1 Soares mouse mammary gland NbMM... 94 2e-17  
 gb|AA667535|AA667535 vv18b12.r1 Stratagene mouse heart (#937316... 40 0.31  
 gb|AA208274|AA208274 mv96a01.r1 GuayWoodford Beier mouse kidney... 38 1.2

---

gb AA444814 AA444814	vg50e04.r1 Soares mouse mammary gland NbMM...	38	1.2
gb AA763341 AA763341	vw53b12.r1 Soares mouse mammary gland NMLM...	38	1.2
gb AA110827 AA110827	mp57a12.r1 Soares 2NbMT Mus musculus cDNA ...	38	1.2
gb AA691932 AA691932	vt06b04.r1 Barstead mouse myotubes MPLRB5 ...	38	1.2
gb W77233 W77233	me61f11.r1 Soares mouse embryo NbME13.5 14.5 M...	38	1.2
gb AA072872 AA072872	mm80g08.r1 Stratagene mouse embryonic carc...	38	1.2
gb AA980630 AA980630	ua43f05.r1 Soares mouse mammary gland NbMM...	36	4.9
gb AA065522 AA065522	ml54d09.r1 Stratagene mouse testis (#93730...	36	4.9
gb AA982398 AA982398	uh07b08.r1 Soares mouse hypothalamus NMHy ...	36	4.9
gb W62610 W62610	md58c06.r1 Soares mouse embryo NbME13.5 14.5 M...	36	4.9
gb AA286651 AA286651	vb79b02.r1 Soares mouse 3NME12 5 Mus muscu...	36	4.9
gb AA399772 AA399772	vd70g05.r1 Beddington mouse embryonic regi...	36	4.9
gb AA510475 AA510475	vg32h08.r1 Soares mouse mammary gland NbMM...	36	4.9
gb AA109064 AA109064	ml63g02.r1 Stratagene mouse testis (#93730...	36	4.9
gb AA033485 AA033485	mi42c08.r1 Soares mouse embryo NbME13.5 14...	36	4.9
gb W57221 W57221	md59g10.r1 Soares mouse embryo NbME13.5 14.5 M...	36	4.9
gb AA467106 AA467106	vd98b04.r1 Soares mouse NbMH Mus musculus ...	36	4.9
gb W97470 W97470	mf95a11.r1 Soares mouse embryo NbME13.5 14.5 M...	36	4.9
gb AA606917 AA606917	vm91c05.r1 Knowles Solter mouse blastocyst...	36	4.9
dbj C78330 C78330	Mus musculus 3.5-dpc blastocyst cDNA 3'-end s...	36	4.9
gb AA013753 AA013753	mh26h12.r1 Soares mouse placenta 4NbMP13.5...	36	4.9
gb AA145240 AA145240	mr12a03.r1 Soares mouse 3NbMS Mus musculus...	36	4.9
gb AA245533 AA245533	mx03c11.r1 Soares mouse NML Mus musculus c...	36	4.9
gb AA770893 AA770893	vt13a08.r1 Barstead mouse myotubes MPLRB5 ...	36	4.9
dbj C79987 C79987	Mus musculus 3.5-dpc blastocyst cDNA 3'-end s...	36	4.9
gb AA014027 AA014027	mh24a12.r1 Soares mouse placenta 4NbMP13.5...	36	4.9
dbj C89051 C89051	Mus musculus early blastocyst cDNA, clone 01B...	36	4.9
gb AA058308 AA058308	mj59e09.r1 Soares mouse embryo NbME13.5 14...	36	4.9
gb AA673826 AA673826	vu08h10.r1 Barstead mouse myotubes MPLRB5 ...	36	4.9
gb AA637080 AA637080	vn07h04.r1 Knowles Solter mouse blastocyst...	36	4.9
gb W44292 W44292	mc80c07.r1 Soares mouse embryo NbME13.5 14.5 M...	36	4.9
gb AA955972 AA955972	UI-R-E1-ff-d-10-0-UI.s1 UI-R-E1 Rattus nor...	159	4e-37
gb AA957275 AA957275	UI-R-E1-fq-f-08-0-UI.s1 UI-R-E1 Rattus nor...	157	2e-36
emb Z84031 SSZ84031	S.scrofa mRNA; expressed sequence tag (5'; ...	111	9e-23
gb AF041408 AF041408	Fragaria x ananassa clone FA110b	96	5e-18
gb AA933116 AA933116	SWBmL3SA048T3 Brugia malayi L3 subtracted ...	58	1e-06
gb AA933363 AA933363	SWBmL3SA615T3 Brugia malayi L3 subtracted ...	52	7e-05
gb AA660164 AA660164	00001 MtRHE Medicago truncatula cDNA 5' si...	50	3e-04
gb N37420 N37420	18647 Lambda-PRL2 Arabidopsis thaliana cDNA cl...	44	0.018
gb H35981 H35981	14503 Lambda-PRL2 Arabidopsis thaliana cDNA cl...	44	0.018
gb AA882627 AA882627	TENS0198 T. cruzi epimastigote normalized ...	44	0.018
gb AI026481 AI026481	TENU0693 T. cruzi epimastigote normalized ...	42	0.070
gb AA946369 AA946369	EST201868 Normalized rat lung, Bento Soare...	42	0.070

gb|AI010371|AI010371 EST204822 Normalized rat lung, Bento Soare... 42 0.070  
 gb|AI010257|AI010257 EST204708 Normalized rat lung, Bento Soare... 42 0.070  
 dbj|D39318|RICR3325A Rice cDNA, partial sequence (R3325\_1A). 40 0.28  
 gb|U40140|OSU40140 Oryza sativa clone pFDRRC22 mRNA sequence. 40 0.28  
 gb|AI009132|AI009132 EST203583 Normalized rat embryo, Bento Soa... 40 0.28  
 dbj|D47291|RICS12574A Rice cDNA, partial sequence (S12574\_1A) 40 0.28  


---

 dbj|D47316|RICS12613A Rice cDNA, partial sequence (S12613\_1A). 40 0.28  
 gb|T42265|T42265 5528 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 40 0.28  
 dbj|D47631|RICS13239A Rice cDNA, partial sequence (S13239\_1A). 40 0.28  
 gb|AI013513|AI013513 EST208188 Normalized rat spleen, Bento Soa... 40 0.28  
 gb|AA751980|AA751980 96AS0896 Rice Immature Seed Lambda ZAPII c... 40 0.28  
 gb|AA660165|AA660165 00002 MtrHE Medicago truncatula cDNA 5' si... 40 0.28  
 emb|Z34868|ATTS3597 A. thaliana transcribed sequence; clone FAF... 40 0.28  
 dbj|D39131|RICR2302A Rice cDNA, partial sequence (R2302\_1A). 40 0.28  
 gb|AA963968|AA963968 UI-R-C0-gs-b-05-0-UI.s1 UI-R-C0 Rattus nor... 40 0.28  
 gb|AA866346|AA866346 UI-R-A0-bm-a-05-0-UI.s1 UI-R-A0 Rattus nor... 40 0.28  
 gb|AI044437|AI044437 UI-R-C1-js-e-06-0-UI.s1 UI-R-C1 Rattus nor... 40 0.28  
 dbj|D41811|RICS4634A Rice cDNA, partial sequence (S4634\_1A). 40 0.28  
 dbj|C19261|C19261 Rice cDNA, partial sequence (E10176\_1A) 40 0.28  
 dbj|D48409|RICS14588A Rice cDNA, partial sequence (S14588\_1A). 40 0.28  
 dbj|C26556|C26556 Rice cDNA, partial sequence (C12586\_1A) 40 0.28  
 dbj|D47831|RICS13548A Rice cDNA, partial sequence (S13548\_1A). 40 0.28  
 dbj|C72152|C72152 Rice cDNA, partial sequence (E1094\_3A) 40 0.28  
 dbj|D46553|RICS11305A Rice cDNA, partial sequence (S11305\_2A). 40 0.28  
 gb|AI028926|AI0289 (and many others of similar score)

SEQ ID NO:565

emb|X68308|OOLPLIP O.ovis mRNA for lipoprotein lipase 40 1.2  
 gb|AE000660|HUA000660 Homo sapiens T-cell receptor alpha delta... 40 1.2  
 emb|AL022333|HS474112 Human DNA sequence \*\*\* SEQUENCING IN PROG... 38 4.6  
 emb|Z12618|CFTRG C.fasciculata gene encoding trypanothione redu... 38 4.6  
 gb|M81651|HUMSEMIIB Human semenogelin II (SEMGII) gene, complet... 38 4.6  
 gb|M96980|HUMMYT1A Homo sapiens myelin transcription factor 1 (... 38 4.6  
 gb|U89688|ACU89688 Acanthamoeba castellanii myosin-I binding pr... 38 4.6  
 gb|AC002497|AC002497 Human Cosmid g1940a142 from 7q31.3, comple... 38 4.6  
 gb|M81652|HUMSMNGLN Homo sapiens semenogelin II mRNA, complete ... 38 4.6  
 gb|M25665|HUMNCF1A Human neutrophil cytosol factor 1 (NCF-47k) ... 38 4.6  
 gb|M73325|TRFTRPREDC Crithidia fasciculata trypanothione reduct... 38 4.6  
 gb|M73324|TRFTRPREDB Crithidia fasciculata trypanothione reduct... 38 4.6  
 emb|X92589|MMSEMIIGN M.mulatta semenogelin II gene 38 4.6  
 emb|Z47556|HSSG1SG2 H.sapiens genes for semenogelin I and semen... 38 4.6  
 gb|AC004753|AC004753 Homo sapiens chromosome 16, cosmid clone R... 38 4.6  
 gb|M55067|HUMNADPHO Human 47-kD autosomal chronic granulomatous... 38 4.6

gb|M73323|TRFTRPREDA Crithidia fasciculata trypanothione reduct... 38 4.6

#### HUMAN ESTs

---

gb|R11942|R11942 yf54c05.r1 Homo sapiens cDNA clone 25950 5' 656 0.0

gb|AA366384|AA366384 EST77326 Pancreas tumor III Homo sapiens c... 470 e-130

gb|T12566|T12566 CHR90086 Homo sapiens genomic clone P94\_24 5' ... 133 5e-29

gb|R37032|R37032 yf54c05.s1 Homo sapiens cDNA clone 25950 3' 44 0.036

gb|AA661650|AA661650 nv02h12.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA261982|AA261982 zs20d03.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|AA588219|AA588219 no24c11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA250891|AA250891 zs06c06.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|AA244177|AA244177 nc05a02.r1 NCI\_CGAP\_Pr1 Homo sapiens cDNA ... 38 2.2

gb|AA715147|AA715147 nv10d05.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA659887|AA659887 nv03a10.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA627890|AA627890 nq70a08.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA603596|AA603596 np27b11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA613738|AA613738 np25h09.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA715248|AA715248 nv10h06.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AI038487|AI038487 ow25d12.x1 Soares\_parathyroid\_tumor\_NbHPA ... 38 2.2

gb|AA252786|AA252786 zs26f10.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|AA287819|AA287819 zs50h04.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|AA564176|AA564176 nj04c08.s1 NCI\_CGAP\_Pr21 Homo sapiens cDNA... 38 2.2

gb|AA643870|AA643870 np26h07.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA280371|AA280371 zt05f07.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|R00687|R00687 ye78h08.r1 Homo sapiens cDNA clone 123903 5' s... 38 2.2

gb|AA587820|AA587820 nj06h05.s1 NCI\_CGAP\_Pr21 Homo sapiens cDNA... 38 2.2

gb|AA588443|AA588443 no22c11.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA568385|AA568385 nl88f06.s1 NCI\_CGAP\_Co10 Homo sapiens cDNA... 38 2.2

gb|AA281831|AA281831 zt06c08.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|AA700438|AA700438 zj74b08.s1 Soares fetal liver spleen 1NFLS... 38 2.2

gb|AA689530|AA689530 ns66e07.r1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA688300|AA688300 nv14a09.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA687962|AA687962 nv13h04.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA526586|AA526586 ni96f11.s1 NCI\_CGAP\_Pr21 Homo sapiens cDNA... 38 2.2

gb|AA642589|AA642589 nq73f04.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA541594|AA541594 ni89g07.s1 NCI\_CGAP\_Pr21 Homo sapiens cDNA... 38 2.2

gb|AA278713|AA278713 zs76h02.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

gb|T58661|T58661 ya94a07.r1 Homo sapiens cDNA clone 69300 5' si... 38 2.2

gb|AA689473|AA689473 ns66e07.s1 NCI\_CGAP\_Pr22 Homo sapiens cDNA... 38 2.2

gb|AA459023|AA459023 aa26a09.r1 NCI\_CGAP\_GCB1 Homo sapiens cDNA... 38 2.2

dbj|C76752|C76752 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 60 2e-07  
gb|AA123048|AA123048 mn32g01.r1 Beddington mouse embryonic regi... 36 3.2  
gb|AA616529|AA616529 vo10e01.r1 Barstead mouse myotubes MPLRB5 ... 36 3.2  
gb|AA254370|AA254370 va13h09.r1 Soares mouse lymph node NbMLN M... 36 3.2  
gb|AA537288|AA537288 vk46c04.r1 Soares mouse mammary gland NbMM... 36 3.2  
~~gb|AA462365|AA462365 vg74c05.r1 Soares mouse NbMH Mus musculus ... 36 3.2~~  
gb|AA589462|AA589462 vl47g07.s1 Stratagene mouse skin (#937313)... 36 3.2  
gb|AA968017|AA968017 uh06h10.r1 Soares mouse hypothalamus NMHy ... 36 3.2

dbj|C93868|C93868 Dictyostelium discoideum slug cDNA, clone SSL809 36 2.8  
gb|AA531984|AA531984 TgESTzz46b06.r1 TgME49 invivo Bradyzoite c... 36 2.8  
gb|N60418|N60418 TgESTzy07a10.r1 TgRH Tachyzoite cDNA Toxoplasma... 36 2.8  
gb|H32045|H32045 EST106774 Rat PC-12 cells, untreated Rattus sp... 36 2.8  
gb|AA956789|AA956789 UI-R-E1-fr-h-01-0-UI.s1 UI-R-E1 Rattus nor... 36 2.8  
gb|H33275|H33275 EST109117 Rat PC-12 cells, NGF-treated (9 days... 36 2.8  
gb|AA531938|AA531938 TgESTzz45b08.r1 TgME49 invivo Bradyzoite c... 36 2.8  
dbj|D41507|RICS4044A Rice cDNA, partial sequence (S4044\_1A). 36 2.8  
gb|AA799411|AA799411 EST188908 Normalized rat heart, Bento Soar... 36 2.8  
gb|AA519671|AA519671 TgESTzz27c10.r1 TgME49 invivo Bradyzoite c... 36 2.8  
dbj|D40678|RICS2786A Rice cDNA, partial sequence (S2786\_1A). 36 2.8  
gb|AA012430|AA012430 TgESTzz22b12.r1 TgME49cDNA Toxoplasma gond... 36 2.8  
dbj|D40551|RICS2612A Rice cDNA, partial sequence (S2612\_1A). 36 2.8  
gb|AI008452|AI008452 EST202903 Normalized rat embryo, Bento Soa... 36 2.8  
dbj|D41253|RICS3620A Rice cDNA, partial sequence (S3620\_1A). 36 2.8  
gb|AA923843|AA923843 UI-R-A1-dr-f-04-0-UI.s1 UI-R-A1 Rattus nor... 36 2.8  
gb|AA799410|AA799410 EST188907 Normalized rat heart, Bento Soar... 36 2.8

We claim:

---

1. A method of diagnosing a disorder characterized by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule, comprising:

contacting a biological sample isolated from a subject with an agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an

5 expression product thereof complexed with an HLA molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and

determining the interaction between the agent and the nucleic acid molecule or the expression product as a determination of the disorder.

10 2. The method of claim 1, wherein the agent is selected from the group consisting of

(a)

a nucleotide acid molecule comprising NA group 1 nucleic acid molecules  
15 or a fragment thereof,

(b)

a nucleic acid molecule comprising NA group 3 nucleic acid molecules or  
a fragment thereof,

20

(c)

a nucleic acid molecule comprising NA group 17 nucleic acid molecules  
or a fragment thereof,

25

(d)

an antibody that binds to an expression product of NA group 1 nucleic  
acids,

(e)

30 an antibody that binds to an expression product of NA group 3 nucleic  
acids,



(f)

an antibody that binds to an expression product of NA group 17 nucleic acids,

---

5

(g)

and agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 1 nucleic acid,

10

(h)

an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 3 nucleic acid, and

(I)

15

an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 17 nucleic acid.

3. The method of claim 1, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is  
20 a plurality of agents, each of which is specific for a different human cancer associated antigen precursor, and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 4, at least 6, at least 7, or at least 8, at least 9 or at least 10 such agents.

25

4. The method of claims 1-3, wherein the agent is specific for a human cancer associated antigen precursor that is a breast, a gastric, a lung, a prostate, a renal or a colon cancer associated antigen precursor.

5. A method for determining regression, progression or onset of a condition  
30 characterized by expression of abnormal levels of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising

monitoring a sample, from a patient who has or is suspected of having the condition, for a parameter selected from the group consisting of

(I)

5

the protein,

(ii)

a peptide derived from the protein,

10

(iii)

an antibody which selectively binds the protein or peptide, and

(iv)

15

cytolytic T cells specific for a complex of the peptide derived from the protein and an MHC molecule,  
as a determination of regression, progression or onset of said condition.

6.

The method of claim 5, wherein the sample is a body fluid, a body effusion or a tissue.

20

7.

The method of claim 5, wherein the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of

(a)

25

an antibody which selectively binds the protein of (I), or the peptide of (ii),

(b)

a protein or peptide which binds the antibody of (iii), and

30

(c)

a cell which presents the complex of the peptide and MHC molecule of  
(iv).

---

5

8. The method of claim 7, wherein the antibody, the protein, the peptide or  
the cell is labeled with a radioactive label or an enzyme.

9. The method of claim 5, comprising assaying the sample for the peptide.

10

10. The method of claim 5, wherein the nucleic acid molecule is a NA Group  
3 molecule.

11. The method of claim 5, wherein the nucleic acid molecule is a NA Group

15 11 molecule.

12. The method of claim 5, wherein the nucleic acid molecule is a NA Group  
12 molecule.

20 13. The method of claim 5, wherein the nucleic acid molecule is a NA Group  
13 molecule.

14. The method of claim 5, wherein the nucleic acid molecule is a NA Group  
14 molecule.

25

15. The method of claim 5, wherein the nucleic acid molecule is a NA Group  
15 molecule.

16. The method of claim 5, wherein the nucleic acid molecule is a NA Group

30 16 molecule.

17. The method of claim 5, wherein the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different of the plurality of proteins.

---

5 18. A pharmaceutical preparation for a human subject comprising  
an agent which when administered to the subject enriches selectively the  
presence of complexes of an HLA molecule and a human cancer associated antigen, and  
a pharmaceutically acceptable carrier, wherein the human cancer  
associated antigen is a fragment of a human cancer associated antigen precursor encoded by a  
10 nucleic acid molecule comprises a NA Group 1 molecule.

19. The pharmaceutical preparation of claim 18, wherein the agent comprises  
a plurality of agents, each of which enriches selectively in the subject complexes of an HLA  
molecule and a different human cancer associated antigen.

15

20. The pharmaceutical preparation of claim 19, wherein the plurality is at  
least two, at least three, at least four or at least 5 different such agents.

21. The pharmaceutical preparation of claim 18, wherein the nucleic acid  
20 molecule is a NA Group 3 nucleic acid molecule.

22. The pharmaceutical preparation of claim 18, wherein the agent is selected  
from the group consisting of  
(1) an isolated polypeptide comprising the human cancer associated  
25 antigen, or a functional variant thereof,  
(2) an isolated nucleic acid operably linked to a promoter for expressing  
the isolated polypeptide, or functional variant thereof,  
(3) a host cell expressing the isolated polypeptide, or functional variant  
thereof, and

(4) isolated complexes of the polypeptide, or functional variant thereof, and an HLA molecule.

23. The pharmaceutical preparation of claims 18-22, further comprising an  
5 adjuvant.

---

24. The pharmaceutical preparation of claim 18, wherein the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell is nonproliferative.

10 25. The pharmaceutical preparation of claim 18, wherein the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide.

15 26. The pharmaceutical preparation of claim 18, wherein the agent is at least two, at least three, at least four or at least five different polypeptides, each coding for a different human cancer associated antigen or functional variant thereof.

20 27. The pharmaceutical preparation of claim 18, wherein the agent is a PP Group 2 polypeptide.

28. The pharmaceutical preparation of claim 18, wherein the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.

25 29. The pharmaceutical preparation of claim 25, wherein the cell expresses one or both of the polypeptide and HLA molecule recombinantly.

30 30. The pharmaceutical preparation of claim 25, wherein the cell is nonproliferative.

31. A composition comprising  
an isolated agent that binds selectively a PP Group 1 polypeptide.

32. The composition of matter of claim 31, wherein the agent binds selectively  
5 a PP Group 3 polypeptide.

---

33. The composition of matter of claim 31, wherein the agent binds selectively  
a PP Group 11 polypeptide.

10 34. The composition of matter of claim 31, wherein the agent binds selectively  
a PP Group 12 polypeptide.

35. The composition of matter of claim 31, wherein the agent binds selectively  
a PP Group 13 polypeptide.

15 36. The composition of matter of claim 31, wherein the agent binds selectively  
a PP Group 14 polypeptide.

37. The composition of matter of claim 31, wherein the agent binds selectively  
20 a PP Group 15 polypeptide.

38. The composition of matter of claim 31, wherein the agent binds selectively  
a PP Group 16 polypeptide.

25 39. The composition of claims 31-38, wherein the agent is a plurality of  
different agents that bind selectively at least two, at least three, at least four, or at least five  
different such polypeptides.

40. The composition of claims 31-38, wherein the agent is an antibody.

41. The composition of claim 39, wherein the agent is an antibody.

42. A composition of matter comprising  
a conjugate of the agent of claims 31-41 and a therapeutic or diagnostic

---

5 agent.

43. The composition of matter of claim 42, wherein the conjugate is of the  
agent and a therapeutic or diagnostic that is a toxin.

10 44. A pharmaceutical composition comprising an isolated nucleic acid  
molecule selected from the group consisting of:

(1)

NA Group 1 molecules, and

15 (2)

NA Group 2 molecules, and a pharmaceutically acceptable carrier.

45. The pharmaceutical composition of claim 44, wherein the isolated nucleic  
acid molecule comprises a NA Group 3 or NA Group 4 molecule.

20

46. The pharmaceutical composition of claim 44, wherein the isolated nucleic  
acid molecule comprises at least two isolated nucleic acid molecules coding for two different  
polypeptides, each polypeptide comprising a different human cancer associated antigen.

25 47. The pharmaceutical composition of claims 44-46 further comprising an  
expression vector with a promoter operably linked to the isolated nucleic acid molecule.

48. The pharmaceutical composition of claims 44-46 further comprising a host  
cell recombinantly expressing the isolated nucleic acid molecule.

30

49. A pharmaceutical composition comprising  
an isolated polypeptide comprising a PP Group 1 or a PP Group 2  
polypeptide, and  
~~a pharmaceutically acceptable carrier~~
- 

5

50. The pharmaceutical composition of claim 49, wherein the isolated  
polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.

- 10 51. The pharmaceutical composition of claim 49, wherein the isolated  
polypeptide comprises at least two different polypeptides, each comprising a different human  
cancer associated antigen.

52. The pharmaceutical composition of claim 49, wherein the isolated  
15 polypeptides are PP Group 11 polypeptides or HLA binding fragments thereof.

53. The pharmaceutical composition of claim 49, wherein the isolated  
polypeptides are PP  
Group 12 polypeptides or HLA binding fragments thereof.

20

54. The pharmaceutical composition of claim 49, wherein the isolated  
polypeptides are PP Group 13 polypeptides or HLA binding fragments thereof.

55. The pharmaceutical composition of claim 49, wherein the isolated  
25 polypeptides are PP Group 14 polypeptides or HLA binding fragments thereof.

56. The pharmaceutical composition of claim 49, wherein the isolated  
polypeptides are PP Group 15 polypeptides or HLA binding fragments thereof.

30



57. The pharmaceutical composition of claim 49, wherein the isolated polypeptides are PP Group 16 polypeptides or HLA binding fragments thereof.

58. ~~The pharmaceutical composition of claims 49-57, further comprising an~~

---

5    adjuvant.

59. An isolated nucleic acid molecule comprising a NA Group 3 molecule.

60. An isolated nucleic acid molecule comprising a NA Group 4 molecule.

10

61. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 11 molecule or a fragment thereof.

62. The isolated nucleic acid molecule of claims 59-60, wherein the molecule  
15 is a Group 12 molecule or a fragment thereof.

63. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 13 molecule or a fragment thereof.

20 64. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 14 molecule or a fragment thereof.

65. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 15 molecule or a fragment thereof.

25

66. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 16 molecule or a fragment thereof.

67. An isolated nucleic acid molecule selected from the group consisting of

(a)

a fragment of a nucleic acid selected from the group of nucleic acid

~~consisting of SEQ ID NOs presenting nucleic acid sequences among SEQ ID NOs. 1-816, of~~

---

5 sufficient length to represent a sequence unique within the human genome, and identifying a nucleic acid encoding a human cancer associated antigen precursor,

(b)

complements of (a),

10

provided that the fragment includes a sequence of contiguous nucleotides

which is not identical to any sequence selected from the sequence group consisting of

(1) sequences having the GenBank accession numbers of Table 1

(correct?),

15

(2) complements of (1), and

(3) fragments of (1) and (2).

68. The isolated nucleic acid molecule of claim 67, wherein the sequence of contiguous nucleotides is selected from the group consisting of:

20

(1)

at least two contiguous nucleotides nonidentical to the sequence group,

(2)

at least three contiguous nucleotides nonidentical to the sequence group,

(3)

25

at least four contiguous nucleotides nonidentical to the sequence group,

(4)

at least five contiguous nucleotides nonidentical to the sequence group,

(5)

30

at least six contiguous nucleotides nonidentical to the sequence group,

(6)

at least seven contiguous nucleotides nonidentical to the sequence group.

69. The isolated nucleic acid molecule of claim 67, wherein the fragment has a

5 size selected from the group consisting of at least: 8 nucleotides, 10 nucleotides, 12 nucleotides, 14 nucleotides, 16 nucleotides, 18 nucleotides, 20, nucleotides, 22 nucleotides, 24 nucleotides, 26 nucleotides, 28 nucleotides, 30 nucleotides, 50 nucleotides, 75 nucleotides, 100 nucleotides, and 200 nucleotides.

10 70. The isolated nucleic acid molecule of claim 67, wherein the molecule encodes a polypeptide which, or a fragment of which, binds a human HLA receptor or a human antibody.

71. An expression vector comprising an isolated nucleic acid molecule of  
15 claims 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69 or 70 operably linked to a promoter.

72. An expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 2 molecule.

20 73. An expression vector comprising a NA Group 1 or Group 2 molecule and a nucleic acid encoding an HLA molecule.

74. A host cell transformed or transfected with an expression vector of claims 71, 72, or 73.

25 75. A host cell transformed or transfected with an expression vector of claim 71 or claim 72 and further comprising a nucleic acid encoding HLA.

76. An isolated polypeptide encoded by the isolated nucleic acid molecule of  
30 claims 59, 60, 61, 62, 63, 64, 65, or 66.

77. A fragment of the polypeptide of claim 76 which is immunogenic.

78. The fragment of claim 77, wherein the fragment, or a portion of the fragment, binds HLA or a human antibody.

---

5

79. An isolated fragment of a human cancer associated antigen precursor which, or portion of which, binds HLA or a human antibody, wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule.

10 80. The fragment of claim 79, wherein the fragment is part of a complex with HLA.

81. The fragment of claim 79, wherein the fragment is between 8 and 12 amino acids in length.

15

82. An isolated polypeptide comprising a fragment of the polypeptide of claim 76 of sufficient length to represent a sequence unique within the human genome and identifying a polypeptide that is a human cancer associated antigen precursor.

20 83. A kit for detecting the presence of the expression of a human cancer associated antigen precursor comprising  
a pair of isolated nucleic acid molecules each of which consists essentially of a molecule selected from the group consisting of

25 (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence of any of the NA Group 1 molecules and

(b) complements of ("a"), wherein the contiguous segments are nonoverlapping.

30

84. The kit of claim 83, wherein the pair of isolated nucleic acid molecules is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a NA Group 3 molecule.

---

5 85. A method for treating a subject with a disorder characterized by expression of a human cancer associated antigen precursor, comprising administering to the subject an amount of an agent, which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human cancer associated  
10 antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of

(a)

a nucleic acid molecule comprising NA group 1 nucleic acid molecules,

15

(b)

a nucleic acid molecule comprising NA group 3 nucleic acid molecules,

(c)

20

a nucleic acid molecule comprising NA group 17 nucleic acid molecules.

86. The method of claim 85, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which enriches selectively in the subject the presence of complexes  
25 of an HLA molecule and a different human cancer associated antigen.

87. The method of claim 86, wherein the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

88. The method of claims 85-87, wherein the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, PP Group 5, PP Group 6, PP Group 7, PP Group 8, PP Group 9, PP Group 10, PP Group 11, PP Group 12, PP Group 13, PP Group 14, PP Group 15, PP Group 16 and PP Group 17

---

5 polypeptides.

89. The method of claims 85-88, wherein the disorder is cancer.

90. A method for treating a subject having a condition characterized by  
10 expression of a human cancer associated antigen precursor in cells of the subject, comprising:

(I)

removing an immunoreactive cell containing sample from the subject,

15 (ii)

contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor,

20 (iii)

introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from  
25 the group of nucleic acid molecules consisting of NA Group 1, NA Group 2, NA Group 3, NA Group 4, NA Group 5, NA Group 6, NA Group 7, NA Group 8, NA Group 9, NA Group 10, NA Group 11, NA Group 12, NA Group 13, NA Group 14, NA Group 15, NA Group 16, and NA Group 17.

91. The method of claim 90, wherein the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen.

92. The method of claim 90, wherein the host cell endogenously expresses an  
5 HLA molecule which binds the human cancer associated antigen.

93. A method for treating a subject having a condition characterized by expression of a human cancer associated antigen precursor in cells of the subject, comprising:

10 (I)  
identifying a nucleic acid molecule expressed by the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule

(ii)  
15 transfecting a host cell with a nucleic acid selected from the group consisting of

(a) the nucleic acid molecule identified,  
20

(b)  
a fragment of the nucleic acid identified which includes a segment coding for a human cancer associated antigen,  
25

(c)  
deletions, substitutions or additions to (a) or (b), and  
30

(d)

degenerates of (a), (b), or (c);

(iii)

---

5                   culturing said transfected host cells to express the transfected nucleic acid molecule, and;

(iv)

                  introducing an amount of said host cells or an extract thereof to the subject  
10   effective to increase an immune response against the cells of the subject associated with the condition.

94.               The method of claim 93, further comprising:

15

(a)

                  identifying an MHC molecule which presents a portion of an expression product of the nucleic acid molecule,

20               wherein the host cell expresses the same MHC molecule as identified in (a) and wherein the host cell presents an MHC binding portion of the expression product of the nucleic acid molecule.

95.               The method of claim 93, wherein the immune response comprises a B-cell  
25   response or a T cell response.

96.               The method of claim 95, wherein the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human  
30   cancer associated antigen.



97. The method of claim 93, wherein the nucleic acid molecule is a NA Group 3 molecule.

98. The method of claims 93 or 94, further comprising treating the host cells

---

5 to render them non-proliferative.

99. A method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising

10 administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

100. The method of claim 99, wherein the antibody is a monoclonal antibody.

15

101. The method of claim 100, wherein the monoclonal antibody is a chimeric antibody or a humanized antibody.

102. A method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

20

administering to a subject a pharmaceutical composition of any one of claims 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 47, and 58 in an amount effective to prevent, delay the onset of, or inhibit the condition in  
25 the subject.

103. The method of claim 102, wherein the condition is cancer.

104. The method of claims 102-103, further comprising first identifying that  
30 the subject expresses in a tissue abnormal amounts of the protein.

105. A method for treating a subject having a condition characterized by expression of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

(I) identifying cells from the subject which express abnormal amounts of

---

5 the protein;

(ii) isolating a sample of the cells;

(iii) cultivating the cells, and

(iv) introducing the cells to the subject in an amount effective to provoke an immune response against the cells.

10

106. The method of claim 105, wherein the cells express a protein selected from the group consisting of a PP Group 11 protein, a PP Group 12 protein, a PP Group 13 protein, PP Group 14 protein, a PP Group 15 protein and a PP Group 16 protein.

15

107. The method of claim 105, further comprising rendering the cells non-proliferative, prior to introducing them to the subject.

108. A method for treating a pathological cell condition characterized by  
20 aberrant expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

administering to a subject in need thereof an effective amount of an agent which inhibits the expression or activity of the protein.

25 109. The method of claim 108, wherein the agent is an inhibiting antibody which selectively binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody.

110. The method of claim 108, wherein the agent is an antisense nucleic acid  
30 molecule which selectively binds to the nucleic acid molecule which encodes the protein.

111. The method of claim 108, wherein the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

112. A composition of matter useful in stimulating an immune response to a

---

5 plurality of a protein encoded by nucleic acid molecules that are NA Group 1 molecules, comprising

a plurality of peptides derived from the amino acid sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

10

113. The composition of matter of claim 112, wherein at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto.

114. The composition of matter of claim 113, further comprising an adjuvant.

15

115. The composition of matter of claim 114, wherein said adjuvant is a saponin, GM-CSF, or an interleukin.

116. An isolated antibody which selectively binds to a complex of:

20

(i)

a peptide derived from a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule and

25

(ii)

and an MHC molecule to which binds the peptide to form the complex, wherein the isolated antibody does not bind to (i) or (ii) alone.

117. The antibody of claim 116, wherein the antibody is a monoclonal  
30 antibody, a chimeric antibody or a humanized antibody.

NY-1U-12	KEESPPPKVNVNPLIGLLCEYGGSDYEEEEETPPPPQRTAQPKREEQTKKENEEDKLTDMNKLACLLCRRQFPNKEVL	970
LUCA15	PELVNRNGDEENPLKRGVAAAYSGSDNEE.....ELVERLESEEEKLADWKMKMACLLCRRQFPNKKDAL	662
DXS8237E	DLPKLASDDRPSPPRGLVAAAYSGESDSEE.....EQERGGEREEKLTDWQKLACLLCRRQFPNKEAL	233
NY-1U-12	IKHQQLSDLPKQNLEIHRKTKQSEQLAYLERRERE.GKFKGRGNDRRREKLQSFDSPEPKRIKYSRETDSDRKLVNKKEDID	1050
LUCA15	VRHQQLSDLHKQNMIDYRRSRLESEQLALELELRERE.NKYRDRAAERREKYGIPEPPEPKRKKQFDAGTV..NYEQPTKDGID	742
DXS8237E	IRHQQLSGLHKQNLEIHRRAHLSENELEALEKNDMEQNKYRDRAAERREKYGIPEPPEPKRKKYGGISTASVDFEQPTRDGLG	316
NY-1U-12	TSSKGGCVQQATGWRKGTGLGYGHPGLASSEAEGRMRGSPVSGASGRTSKRQSNETYRDAVRRVMFARYKELD	1123
LUCA15	HSNIGNKMLQAMGWREGSGLGRKCQGITAPEAQVRLKGAGLGAKGSAYGLSGADSYKDQAVRKAMFARFIEME	815
DXS8237E	SDNIGSRMLQAMGWKEGSGGLGRKKQGIVTPIEAQTRVRGSLGARGSSYGVTSYKETLHKTMVTRFNEAQ	389

Fig. 1

2/9

AAGGAGAGCGGGCCGTGGAGGCTTCGCCCCCTAGGTACTGCTATAACACAGAAATTTGGTATAAAAAGGATTACTTGTGGGGCCCTCTTGATAAAAGA 100  
 GATGTGGGGGGATTCTCGACCTGCTAACAGAACTGCACCTTTTCGTGGGAGCCCAAGAAAGGTTTGTCTCCCGGGTGGAAACAGGGATTATCCTCTCCT 200  
 1 M M G D S R P A N R T G P Y R G S Q F E R F A P S N H R D Y P P P  
 CCCCCTAAGAGTCATGCTCAAGAGAGACACTCTGGCAACTTCTCCCTGGCAGAGATTACATTCCTCCCTTTGATTTCCAGGGGCATTGGGGCCCTCTTTGCAA 300  
 34 P I K S R A Q E R D S G R F P G R D S L P F D F Q G H S G P P F A  
 ATGTAGAGGAGCATTTCTTCAGCTATGGAGCTAGAGACGGACCGCATGCTGACTATCGAGGAGGGGAGGACCTGGACATGATTTCAGGGGGGAGATT 400  
 67 H V E E H S F S Y G A R Q G P H G D Y R G G K G P G R D F R G G D F  
 TTCGTCCTCTGATTTCAGAGCAGAGATTCAACAGTTCGACTTCAGGGGTAGGGAGATACATTCTGGGATTTCGGGATAGAGAGACCACCTATG 500  
 101 S S S D F G S R D S S Q L D F R G R D T H S G D F R E R E G P P G  
 GACTATAGGGGTGGAGAGGGTACTTCTATGGATTATAGAGGTAGGGAGGCACCTCATATCAACTACAGAGACAGGGATGCTCAGCTCTGACTTACAGAG 600  
 134 D Y R G G D G T S M D Y R G R E A P H H N Y R D R D A H A V D F R  
 GTAGGGATGCTCCTCCATCTGACTTCAGGGCCGGGGACTTATGATTTAGATTATTTAGAGCCCGGATGATCCCATGACAGATTTCAGGGGAAGGATT 700  
 167 G R D A P P S D F R G R G T Y D L D F R G R D G S R A D F R G R C L  
 ATCAGATTTCGATTTTAGGGCCAGAGAACAGTCCCGTTCTGATTTTAGGAATAGAGATGATCTGATTCGACTTTAGAGACAAAGACGGAACACACAGTA 800  
 201 S D L D F R A R E Q S R S D F R N R D V S D L D F R D K D G T Q V  
 GACTTTAGAGCCGAGGTTTCAGGTACTACTGATCTAGACTTTAGGGACAGGGATACCGCACATTTCAGATTTCAGAGGTAGACACCGGATCTAGGACTGATC 900  
 234 D F R G R G S G T T D L D F R D R C T P H S D F R S R H R S R T D  
 AGGATTTAGGGCCAGAGAGATGGGATCTTGTATGGAATTTAAAGATAGGGAGATGCCCCCTGTGGATCCAAATATTTGGATTACATTCAGCCCTCTAC 1000  
 267 Q D F R G R E M G S C M E F K D R E M P P V D P N I L D Y I Q P S T  
 ACAAGATAGAGAACAATCTGGTATGAATGTGAACAGGAGAGAAGAATCCACACAGCACATACGATAGAAAGGCCCTGTTTGGCATTCAGAAGGGAGAA 1100  
 301 Q D R R E S G H N V N R R E K S T H D H T I F R R P A F G I Q K Q K

Fig. 2

3/9

334 TTTGAGCATTCAGAAACAAGAGGAGAAACACAAAGGTGTAGCCTTTGAACATGAGTCTCCAGCAGACTTTCAGAAACAGCCAAAGTCCAGTTCCAGACC 1200  
 F E H S E T R K G E T G G V A F E H E S P A D F Q N S Q S P V Q D  
 367 AAGATAAGTCACAGCTTTCTGGACGCTGAAGAGCAGAGTTCAGATGCTGGTCTGTTTAAAGAAAGGCGGTCTGGACTTCTTGGCGGCAAGACACCCGA 1300  
 Q D K S Q L S G R K K Q S S D A G L F K E E G G L D F A G R Q D T D  
 401 TTACAGAAGCATGGAGTACCGTGTGATGCTGATCATTAGGCTGCCAGGAAGCCAGATGTTTGGCTATGGCCAGAGCAAGTCTTTTCCAGAGGGCAAAACATGCC 1400  
 Y R S N F Y R D V D H R L P G S Q N F G Y G Q S K S F P E G K T A  
 434 CGAGATGCCCAACGGGACCTTCAGGATCAAGATTATAGGACCGGCCCAAGTGAAGAGAAACCCAGCAGGCTTATTCGATTAAAGTGGGTACCTGAGATG 1500  
 R D A Q R D L Q D D T R T G P S E K K P S R L I R L S G V P K D  
 467 CCACAAAAGAGAGATCTTAATGCTTTTCGGACTCCTGATGGCATGCTGTAAAGAACTTGCAGTTGAAGGAGTATAACACAGGTTTACGACTATGCTGCTA 1600  
 A T K E E I R N A F R T P D G M P V K R L Q L K E Y N T G Y D Y G Y  
 501 TCTCTGCGTGGAGTTTTCACTCTTTGGAGATGCCATCGGATGCTCGAGGCCAACCCAGCCCAACTCTAATGATCCAGGACAAAGAGTTACCTTGGTGTAT 1700  
 V C V E F S L L E D A I G C M E A N Q G T L H I Q D K E V T L E Y  
 534 GTATCAAGCCTGGATTTTGGTACTGCAAAACGATGTAAAGGCAACATGGTGGCCAGCATCTTCTGTTTCATTCTGCAAGAACCCCAAGAGAGTGACAG 1800  
 V S S L D F W Y C K R C K A N I G G H R S S C S F C K N P R E V T  
 567 AGGCCAAGCAAGAAATTAATAACCTACCTCAGCCTCAGAAAACATCCATACCAGCACCATTGGAAAAACAGCCCAACCCAGCCCTTAAGACAGCTGATAA 1900  
 E A K Q E L I T Y P Q P Q K T S I P A P L E K Q P N Q P L R P A D K  
 601 GGAACCTGAACCCAGGAAGAGGGAAGGCCCAAGAGTCACGCTTAGGACATCAAAAGAGAGAGCAAGAGGTATCTGCCTCTTCTCGAAGGGAGGG 2000  
 E P E P R K R E E G Q E S R L G H Q K R E A E R Y L P P S R R E G  
 634 CCAACTTCCGAAGACCGAGAGAGGAGTCACTGGTCTGGAGAGACAGCCAGGATGGAGAGAGCAAACTATCATGCTAAAGCGTATCTATCTGTTCCA 2100  
 P T F R R D R F R E S W N G E T R Q D G E S K T I M L K R I Y R S  
 667 CACCACCTGAGGTGATGGAAGTCTGAGGCCCTATGTCGCCCTTACTGCTCCAGTCCGATATCAAGAAACAGAACAGGCCCTTATGGGGCATAC 2200  
 T P P E V I V E V L E P Y V R L T T A N V R I I K N R T G P M G H T

Fig. 2 (CONTINUED)

4/9

701	CTATGGCTTTATTGACCTCGACTCCCATGTGGAAAGCTCTTCGTGTGGTGAAGATCTTTACAGAACCTTGATCCGCCATTTAGCATTTGATGGGAAGATGGTA	2300
	Y G F I D L D S H V E A L R V V K I L Q N L D P P F S I D G K N V	
734	GCTGTAAACCTGGCCACTGGAACGAAGAATGATTCCTCCGACCATTTCTGACCACATGCTACTATCAGGGTAAATAATTTCCGAGATAGCAGGG	2400
	A V N L A T G K R R N D S G D H S D H M H Y Y Q G K K Y F R D R R	
767	GAGTGGCAGAAATTCAGACTGGTCTTCAGATACAAATCGACAAGGACAAGTCATCTCTGAGTGCATACATATATGATCTCTGCTAGTGGCTACTATTATTA	2500
	G G G R N S D W S S D T N R Q G Q S S S D C Y I Y D S A S G Y Y Y	
801	VGACCCCTFGGCAGGAACTTATATGACCCCAATACCCAGCAAGAAGTCTATGTGCCCCAGGATCCTCTGGATTACCTGAGGAAGAAGATCAAGGAATAAAA	2600
	D P L A G T Y Y D P N T Q Q E V Y V P Q D P G L P E E E I E H L	
834	AAACCCACAGTCAAGGAAGTCAAGTAGCAAGAAGGAATGTCTAAAGAGATGGCAAGGAGAAAAGACAGAGGAGTGACGAGGTTTCAGGAAATC	2700
	K P T S Q G K S S S K K E M S K R D G K E K K D R G V T R F Q E N	
867	CCAGTGAAGGGAAGGCCCTGCAGAGAGCTCTTTAAGAAGCCTCCTGCTCCTACTGTGAAGAAGGAAGAGAGTCCCCCTCCACCTAAAGTGGTAAACC	2800
	A S E G K A P A E D V F L K P L F P T V K K E E S P P P P K V V H I	
901	ACTGATCGGCCTCTTGGGTGAATAIGGACGAGACAGTCACTATGAGGAGGAAGAGAGGAAACAGACCCCTCCCCACAGCCCCCGCACAGCACAGCCC	2900
	L I G L L G E Y G G D S D Y E E E E E E Q T P P P Q P R T A Q P	
934	CAGAAGCGAGAGGAGCAACCAAGAAGAGAATGAAGAAGACAAACTCACTGACTGGATAAACTGGCTTGCTCTGCTTTGCAGAAGGCAGTTTCCCAATA	3000
	Q K R E E Q T K K E M E D K L T D W N K L A C L L C R R Q F P N	
967	AAGAAGTCTGATCAACACACAGCAGCTGTCAGACCTGCACAAGCAAAACCTGGAAATCCACCGGAAGATAAAACAGTCTGAGCAGGAGTAGCCTATCT	3100
	K E V L I K R Q Q L S D L H K Q N L E I H R K I K Q S E Q E L A Y L	
1001	GGAAAGGAGAGAACGAGAGGGAAGTTTAAACGAGAGGAATCATCCAGGGAAAAGTCCAGTCTTTTGACTCTCCAGAAAAGGAACCGGATTAAGTAC	3200
	E R R E R E G K F E G R D D D R R E K L Q S F D S P E R K R I H Y	

Fig. 2 (CONTINUED)

5/9

1034 TCCAGGGAACGACAGTGATCGTAAACTTGTGTGATAAAGAAGATATCGACACTAGCAGCAAAAGGAGGCTGTGTCCAACAGGCTACTGGCTGGAGGAAAG 3300  
S R E T D S D R K L V D K E D I D T S S K G G C V Q Q A T G W R K  
1067 GGCAGGCCCTGGGATATGGCCATCCTGGGATTGGCTTCATCAGAGGAGGCTGAAGGCCGGATGAGGGGCCCCAGTGTGGAGCCTCAGGAAGAACCAGCAA 3400  
G T G L G Y G H P G L A S S E E A E G R M R G P S V G A S G R T S E  
1101 AAGACAGTCCCAACGAGACTTATCGAGATGCTGTTCGAAGACTCATCTTGTCTCGATATAAAGAACTCGATTAAAGAAAGGAGACAACTTCCATGGGGATACA 3500  
R Q S N E T Y R D A V K R V M F A R Y K E L D \*\*\*  
ACCTCCCTCTTGTGTTGTTGTCCTCTCTCTTCTTGTGTTACTGTTCTGCTAGAACTTTTAAATAAACTGTTTCAATGTGATTAAATAAA 3599

Fig. 2 (CONTINUED)



6/9

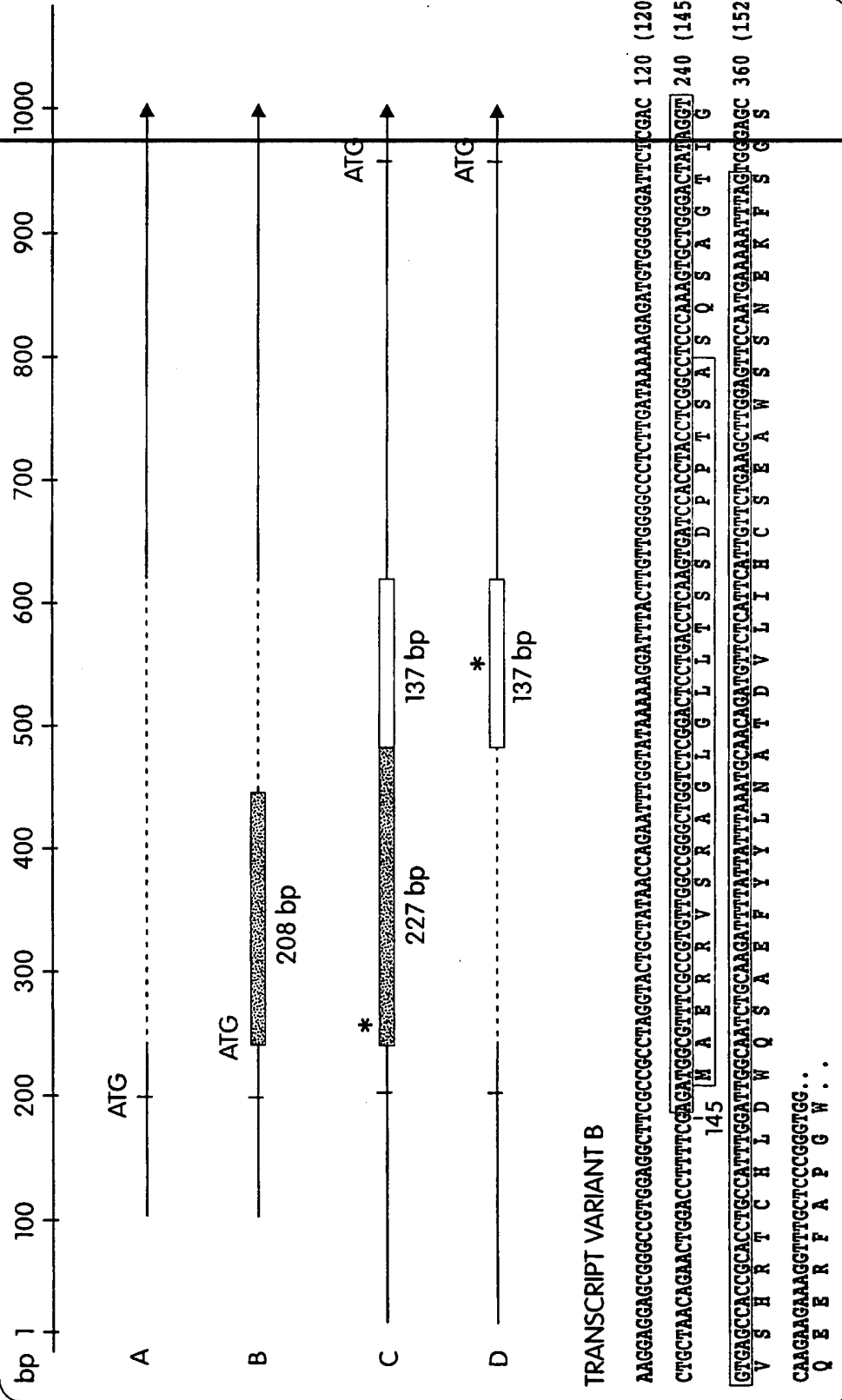


Fig. 3A

227bp exon:  
GACTGGGTGAAAGCTTTTCTGCAGCAGTCATGTAAACCTTGTGTTGACTTTCCTCGTGTCTGAAACTAAC  
AGAACTGGACCTTTTCGGACTGGGTGAAAGCTTTTCTGCAGCAGTCATGTGAAACCTTGTGTTGACTTTCCTT  
CGTGTCTGAAATGGGAGCATAAAAGTTTACTCCGCCACTTCGTCTTAAATAGCAAAACTTTGCTGTTTCTGCAG

137bp exon:  
ATCTAGGACCTTGTACAGAACTCTGCCAAAAAAATGTTTACAGAAAGATGTGCTGTGATTAGAGAAATA  
TGCTGGTGTGTAGATTTCAAACTCTCTGGACAATATGAATAACACTGTCTTGTGTTCTACAG

Fig. 3B

8/9

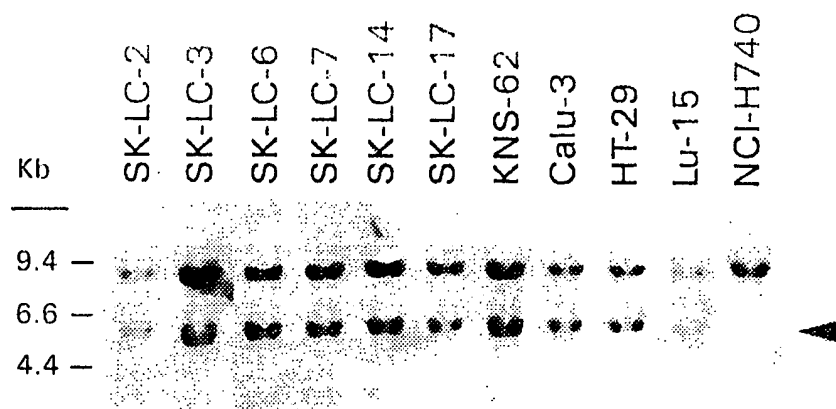


Fig. 4

9/9

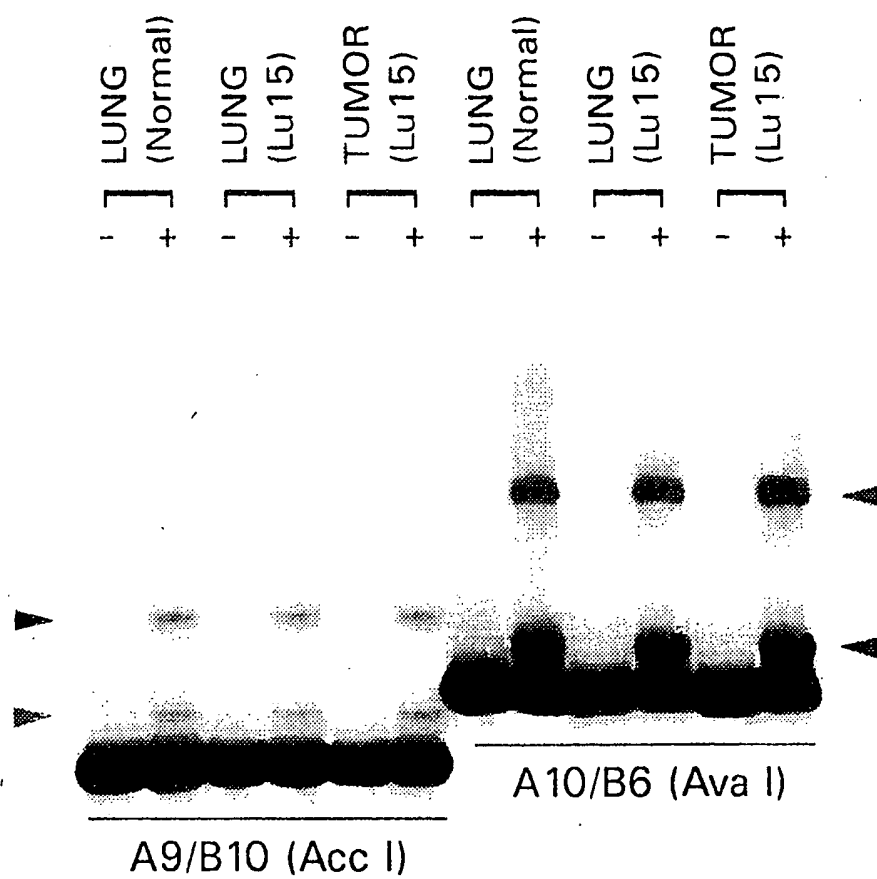


Fig. 5

## SEQUENCE LISTING

<110> Ludwig Institute for Cancer Research  
Old, Lloyd J.  
Scanlan, Matthew J.  
Stockert, Elisabeth  
Gure, Ali  
Chen, Yao-Tseng

---

Gout, Ivan  
O'Hare, Michael  
Obata, Yuichi  
Pfreundschuh, Michael  
Tureci, Ozlem  
Sahin, Ugur

<120> CANCER-ASSOCIATED NUCLEIC ACIDS AND  
POLYPEPTIDES

<130> L0461/7039/JRV/ERG

<140> Unknown

<141> 1998-07-15

<150> U.S. 08/896,164

<151> 1997-07-17

<150> U.S. 60/061,599

<151> 1997-10-10

<150> U.S. 60/061,765

<151> 1997-10-10

<150> U.S. 08/948,705

<151> 1997-10-10

<150> U.S. SNU (LUD5506.1)

<151> 1998-06-22

<150> U.K. 9721697.2

<151> 1997-10-11

<160> 816

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 474

<212> DNA

<213> Homo Sapiens

<400> 1

tctagactgt	cctccccatc	tgtggnaacta	acactatcat	acagtcttgt	cctatagggt	60
ctctggantc	tgttcttcac	acagagctgg	gctcgagttt	tcagtgtttt	tgaatccang	120
cgtctgtct	ctgggaacng	ttcattcaag	tcttgactta	cgccatcttg	gcaagatgtc	180
tgettggcat	ccaantttct	catgggtatcc	cctttanaga	cttcaccaag	agatgttctt	240
ctctcaaaga	tgttggtatt	attgntaact	tgantcccat	tttgcttcag	taagcctgaa	300
tacctcagct	tccaaatctc	taatccgcac	ttggaggcct	tgcacttcca	naagangngc	360
tttttcaaat	cttcnagttt	cnttcttctg	ctcctgtctt	tgnatagatc	aanctcnttt	420
tgntggnagt	centnntnaa	cntcnttgcn	tgntggngnn	tcntttncan	nggc	474

&lt;210&gt; 2

&lt;211&gt; 1054

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 2

tctagactgt	cctccccatc	tgtggangnn	acactgatca	tatcantctg	ggtectanca	60
gggtctctgg	cgtctgtgct	tcacnntant	agctgggctc	nantctncan	ctgcttttga	120
atccacngng	cttgtctctg	ggactgcttc	attcnantct	tgactnaggn	catcttggca	180
agatgtctgc	ttgccatecn	agtnctcnat	ggtatccctt	ttcananact	ccancnanta	240
gatntttctc	tctcnaanat	gttgtecncc	ntcgtnanct	cgagtcccat	tntgettcan	300
tacctnntant	actcacnctc	canatctecn	ntccnccact	ggngggcttn	ctcttnccac	360
canatnactc	tttcncnnaa	tcttctacat	tctctctttt	ctgctccagt	ctnttgatca	420
aaccncctn	nggttcnana	tcncgatna	actctctgt	cnnngtngnt	ctcttttctt	480
cnggcgata	ttggcctcnn	ctccctnnnn	aancatcccc	ccnctgtgna	nnttntttgg	540
ngcccccent	attctttccac	ccctaaattn	cctttntccc	ccaattttcg	ctgtantcgn	600
ttctcncctc	ccannncenc	cnctatctcn	ccccncntt	ngnntcccc	cttnnaacnc	660
ccnctctctn	ctacnttctt	aacctaccct	ctnntctnct	anntctcnc	tctcttctta	720
nntnaancnt	nttcacctac	ngacattnat	nnntnncn	ttctcnnaa	tcnattctn	780
tnctccnnc	ctccatctna	tttctntnct	ctatctnnct	nattcnctc	attattccnt	840
ntactctnnc	actcttctcn	cnnntacatn	ncancctccc	anacancnc	ctccanantn	900
tnttctctct	tcctttctcc	cctctctcnn	ctccccactc	ctccttcccc	tntcttctnc	960
tacntntntt	tcnctcttn	nacnccctc	atcttctccc	ttctccccact	catctantac	1020
ctccncttct	ttnantccnt	ncctttntct	antc			1054

&lt;210&gt; 3

&lt;211&gt; 441

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 3

atthttgttg	aattttatct	ttggcagata	ggcagatata	tttttgtgca	tgtaaacaat	60
cacatatata	taaagctata	taactgtaca	tttttgacag	ctttgtaatc	acaggttgct	120
ctgtcgtttc	cctccataaa	tggtttaatc	tttgtttctt	tcgctttttt	tagagttgtc	180
aattcatatt	gcctctctca	gtttgtacag	tttcttagat	gcttgttact	tttaaaaagg	240
atgtagtagg	aattcatttt	ttntcataaa	gaaatggaac	actattttaa	ataaatttag	300
cnccttgcaa	ctagagcaat	cttttttagtn	ntacctctcc	taaccgacta	attcnacaga	360
atctttgcan	aaattacaca	gtattacttt	tgcntgtgtg	tgatnaccac	tgttcgtcng	420
ccccttgaan	gtttnacatc	t				441

&lt;210&gt; 4

&lt;211&gt; 247

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 4

accgctcacc	gcagacgtgg	tggtctgcagt	cagtcttccc	gagtgcagga	tttcgcccgc	60
cgcttttcagg	cccgtttggc	ttaaataact	gtgattgatg	gccatgcngg	anaaatatcc	120
aactgagggg	atctctcncg	tcacttcacc	gagttccgat	gtgattcana	agggcatttc	180
cctggggact	gaatggcata	ccccantttt	ctcggatccc	tttcngagcc	gcttcaatcg	240
ctgttct						247

&lt;210&gt; 5

&lt;211&gt; 486

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 5

gaggaagga	acagatacct	gccaaagtcaa	tcagagaatg	gcggtaaaac	ttgatggta	60
gccgtctgtc	tggtcatttt	tatgaatgcc	actatagaag	taatctttag	aaactggagc	120
tggttttcagt	ttaatgacgt	ccatgggaatt	aaccggattc	attaataacg	gcacaggaa	180
gagcattgtt	tgaaggatcc	tctgcctagt	ctattaatca	gtttcctttt	agacagggtg	240
acagggtgatt	tctggccctc	attcacagaa	tagaatagtg	gtcgttgaga	agcagacctt	300
gcacctagca	agtcttcaga	ccagtctttt	aagtaatttt	tattccctga	gaagaaaatt	360
gaagaaacaa	ttggggcaaa	ganatttggtg	gggttttact	anaaagatct	cnataaagca	420
aggactgtca	ctctattcct	cattcatatg	agggttcaca	ttaaaaatga	cagtgtttaca	480
cagggt						486

&lt;210&gt; 6

&lt;211&gt; 766

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 6

ggggtcggag	tctgggggtt	cgggcccgcc	gaccgcgccc	ctgctccctc	tcagcacctg	60
ggcggacgaa	atgaccatta	agaagtagat	gccagatgc	aaaagtgatg	aaacagtcca	120
tttgtcataa	agtaagatgc	agctgtggca	tgtaaccag	cttggaacaa	aattgtatct	180
gtttttctca	gaagagaatt	ccacaagggt	aaatcagcaa	acaaagaaaa	catgggtattt	240
tgaaatatga	ttaaactcct	gatgctgcag	cagaggctaa	gaatattaat	ggccagatct	300
agtgcacaca	tggtcttctg	aagaagccat	gggtagctgt	tgtagctgtc	cagataaaga	360
cactgtccca	gataaccatc	ggaacaagtt	taaggtcatt	aatgtggatg	atgatgggaa	420
tgagttaggt	tctggcataa	tggaacttac	agacacagaa	ctgattttat	acacccgcaa	480
acgtgactca	gtaaaatggc	actacctctg	cctgcgacgc	tatggctatg	actcgaatct	540
cttttctttt	gaaagtgggtc	caagggtgca	aactgggaca	aggaatcttt	gcctttaagt	600
gtgcccgtgc	aaaaagaatt	atttaacatg	ttgcaaagag	attatgcaaa	aataatagta	660
taaatgttgg	tggaagaagc	caattttag	aaagaaataa	tcataagac	aagaattgga	720
agtccctaan	aacaacctcg	aaacaactac	aactccaaga	ttttgc		766

&lt;210&gt; 7

&lt;211&gt; 567

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 7

gagcacatgg	cccaggggtg	gagccgacct	ccagacacca	gaagaacaac	ctaagttcct	60
cccacacagt	cagacttgaa	actagaggac	agacagagaa	ccaggaatgt	ctactttgcc	120
cccatgagga	atagaacaa	cttctgact	atcccttggt	gggacaggag	gactttcaag	180
aggatgaaac	tctgaaaaag	agtttaccct	gtgattaatt	aaatgaaatc	ctcaatggcc	240
agagtaatta	tacaagatt	aagtgtcaaa	tgggagagag	tttacctgga	agcagtaaga	300
ttcggtgctt	ttattggttc	atgtgttttg	ttttctgctt	tcggtagaaa	tggatcttca	360
cgagtcagtt	gaatttgatt	aaacagaatt	tagcatttca	gccatttggg	tgacagtggg	420

tgcatctctaa agtcagcaca ccacccaaag tgatatatga ggtggaatgg gaggggtggc	480
aggtatttcag cttaaaggac cgggatatca tgatcagtgg ctactgtttt acttttataaa	540
accttccttt tctgggtcta gactcga	567

&lt;210&gt; 8

&lt;211&gt; 730

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 8

gcgaggctca agcgggcttc tgccccacc ttcgataacg actacagcct ctccgagctt	60
ctctcacagc tggactctgg agtttccag gctgtcgagg gccccgagga gctcagccgc	120
agctcctctg agtccaagct gccatcgtcc ggcagtggga agaggctctc gggggtgtcc	180
tcggtggact ccgccttctc ttocagagga tctctgtcgc tgtcctttga gcgggaacct	240
tcaaccagcg atctgggtac cacagacgtc cagaagaaga agcttgtgga tgccatcgtg	300
tccggggaca ccagcaaact gatgaagatc ctgcagccgc aggacgtgga cctggcactg	360
gacagcggtg ccagcctgct gcacctggcg gtggaggccg ggcaagagga gtgcgccaag	420
tggtgtctgc tcaacaatgc caacccaac ctgagcaacc gtaggggctc caccctgtt	480
cacatggccg tggagaggag ggtgcggggt gtcgtggagc tctgtctggc acggnagatc	540
agtgtcaacg ccaaggatga ggaccagtgg acagccctcc actttgcanc ccanaacggg	600
ggatgagtct agcacacggc tgctgttggg naagaacgcc tcggtcaaac gaagggtggc	660
tttgaggggc ggacgcccac gcaagtggc ctgccaacaa cgggcaaggc gaatatcttg	720
cgcatcctgc	730

&lt;210&gt; 9

&lt;211&gt; 585

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 9

ataatttgtt tcattttcaa ggcacaaaga gtttatgtca atcattttta tgtctaagaa	60
tacaaagtta gactagtaa catctggtag tctaattcatt tatcatgctt aaatgtaaca	120
ttacangnac tacattttta aatctgcccc ctaaccagat gtgaaacaac gtggacaagg	180
gtgacatgtg ctagacccaa totccaaaaa cgtatgggtg acaaagacag ctgactgctg	240
gggtaaaact gcagcagtca taatcgaaga gcgaaagagg ccactctatt aaagactttg	300
tttcttttgc tagacatttt tcacctaatc ccaggatagt ttctgttaat gcatcttact	360
ctcttttcaa cgaatcgtcc cttagacagg gtacacatt aaaaatgagc tttatagcat	420
caaacacata ccacaaccaa ctctacaagg agggttttct gtaagatgtg tacgactgtc	480
cgaagaacac attctggctg ataagtctca agctcctgtg aggtcctgat gagtatctaa	540
acaacctcac attttctctt ccacgcctan ggtaagggc agcac	585

&lt;210&gt; 10

&lt;211&gt; 661

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 10

tctagagttc gcacggaaac acgaagaata ggtgggtgcat attttctggg ttggangtgg	60
atccancctt ctgcatcctg tgacaaaata ttanttatc cttctaaagt atggcaatgt	120
caancatttc atttanatan aananattca ccaccaaata gtttgacacc gtgtctaaag	180
attcggaata tgtttgatcc cgttatggaa ataggggatc agtggcattt ggcaattcaa	240
gaagcaattt tanaaanatg cantgataat gatggcattg ttcacattgc antanacaaa	300
aattcacgtg agggttgtgt atatgttaaa tgtctgtctc cagaatatgc tngaaatgct	360
tttaaactcat tgcattngctc ttgnttttat nggaaattgg ttacagtaaa atattttacga	420
cnaatagat accaccatcg ctttccccan gctctcactt ncnacactcc attnaanncc	480



atcaantatc	atatnaactc	natgtctcat	cttcgtcttc	ngactggnet	aaccaattct	540
caanggnant	tcttgaaaaan	atcttcttcc	atttctaana	ctgtttnttt	acnatagnna	600
aattccngtt	tggtcttttg	tcttcccttt	ttaaactcct	tttgtanntn	atattttant	660
g						661

&lt;210&gt; 11

&lt;211&gt; 1162

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 11

tctagagggt	ttttctcagg	ggcttctctt	agtgtctgng	ctgtctcagg	ctgcgcaggg	60
cctccgcaca	tgccgcggata	aggccacaca	gctggatgct	agtctccang	gaggtgctag	120
agccaggttc	agcagaggcc	cangtcagct	tctgcaagag	ggctgtctgt	gtgcaggcca	180
tgacatctgt	atctggaggc	acagcangag	cagggtggccc	ctgggctgcc	ttnagtcctg	240
ctgcagctcc	ctcacagtgc	tccggacnan	gtactggggg	ctggggcgca	agtcnaganc	300
ccanggggan	ctctgaggct	gaggccanct	ggtgtctccg	agcttgggan	aaggcaacct	360
gngcattcan	ancgggatta	tctttatcca	cgtctganc	tagttcctga	caagccacgc	420
aatanatctt	ccgtctgttg	tcttgaggga	ngatcgtccc	gcagtcgcga	cacgtctcgc	480
ccancatgcy	gtaaccgcgc	aacanatant	cncccatgan	ccgggagatg	cgatcttgcc	540
gctcccgctc	cgctctcanc	acttcgtctc	cgctcaatc	gggggctccc	aaganaantc	600
gtcnacttca	actccgttca	agggccatgt	ttncctgttt	tcaaccgccc	gggctcaaaa	660
ggaaatttac	ttcaaaaccg	gnancngccc	tcccgtctcg	gctccgcccc	ttccaataac	720
ttccgcggga	tnaanggcng	accttnacnc	cttaaccttn	tcctcaanaa	cctccccttt	780
tccccggggg	tggnnccctt	tcengntgct	taccnaanaa	acctttcttn	tngggaannc	840
cttcnnttna	aaccggggaa	ttcccaaggg	gaacaaaaaa	ctttcccnna	nnccccaaaa	900
gctcccttaa	aggaancntt	cccctttggt	aaatncnct	cccgnttccc	aaaaaacctn	960
gaaaattgnc	ctnannnggg	ggnccacccc	ctttcnnttn	cctttcntgg	nnnttaaaang	1020
gnnaacnacn	tttgctttta	aaaaaantnc	ccncccttgg	ntctannctn	ccccctgggg	1080
gttccccttt	ntgnnnncaa	nncnngngnn	natnnnttc	nttacaanaa	nattnnncan	1140
cccnntttca	aaagaaannt	tg				1162

&lt;210&gt; 12

&lt;211&gt; 850

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 12

tctagactgt	cctccccatc	tgtggaacta	acactatcat	acagtcttgt	cctaaagggt	60
ctctggcgte	tgctcttcac	agagagctgg	gctcgagttt	tcagtgtctt	tgaatccagg	120
cgctctgtct	ctgggactgc	ttcattcaag	tcttgactta	ggccatcttg	gcaagatgtc	180
tgcttgccat	ccaagtcttc	catggtatcc	cctttagaga	cttcaccaag	agatgttctt	240
ctctcaaaaga	tggtgttatt	attgttaact	tgagtcccat	tttgtctcag	tagcctgaat	300
acctcanctt	ccaaatctct	aatccgcact	tggaggcctt	gcacttccac	aagatgagct	360
ttttccaaat	cttctatctt	ctttctttct	gcttctctgc	ttttgatgaa	atcaagctct	420
ttttgttgaa	aatccttgat	caacttcttt	gccttggtgt	atttcttttc	caaggcctga	480
tactggcttt	gagtcctctt	gagatgctca	ttcactgtgt	ggcataatgt	ttgggcctca	540
atccantanc	tttccaaact	caacattctt	tccttantct	cttctangtt	ttgttgngan	600
ttgggttttt	tctaanttec	caactcactt	tctctctcgt	gcccnaattc	ccgggtacca	660
aacacaaatg	ggnnccgctt	cccnannaaa	aannnaaaaa	agctctntcca	aaatctcngn	720
nnctttgggn	taatcaatgg	ncaananctg	tttccctgnt	ntnaaaattn	ntntccgct	780
caaaaatttn	ctnanantna	cttttcaaat	ttttttgcgc	ccnccgttnc	aancnnaana	840
ntannccaat						850

&lt;210&gt; 13

<211> 372  
 <212> DNA  
 <213> Homo Sapiens

<400> 13

tctagaatat	ngaatttttc	ctctttaaca	cangggccct	ccttgtcatt	gaccttagct	60
aaaccatggc	aattcataaa	tagaggaaac	attaatgaat	taaaagcatt	ccttattttt	120
taactaatat	ttgtacattt	tcttagtctc	tttccaagtc	tttgccctctt	ttttttcttt	180
atctttat	tttctttga	cagatggat	cccttcctgg	atcattcatt	tcaccttggg	240
ttctaacttt	aggtttactt	tcacttggtt	tttgacttag	caggtgcaac	anaaacaaga	300
aacaaatgtg	cccacccac	tttccgctta	actgaaaagc	ttaaaataaa	tttctgaatt	360
atgtanaant	tc					372

<210> 14  
 <211> 1167  
 <212> DNA  
 <213> Homo Sapiens

<400> 14

tctagactat	ntgtcccttg	ctcttcaaaa	ccaggattcc	ctaattctga	actgcttata	60
agatagcaaa	acaagtctgg	ctaaactaca	gtcaagagct	taggatctat	ggaagccaag	120
aaggcccagg	gctccatgaa	tgggctgggc	aggggcacga	ggccttgccct	ttgtctgaga	180
agtcctcaca	ccacagctga	tcagatggaa	acaatgggga	ancagagttt	cccggtgccg	240
tctttcccca	gcccagattc	caccaagcgc	tggaaagcag	agctgggaat	ctcccaaggc	300
agagtccttc	cagctttcct	ccccctcaac	ttcacactcc	cctacctgtg	gctctggaag	360
gagtcacact	tgaacctcaa	ccaaacttcc	caatatcagt	tggaaagcaa	aaagatgaan	420
cctttcttct	tggactttta	gctacaaagg	ggaacttcct	gtgccaagcc	ctgggttcctc	480
ataccccaac	gagtgctgtg	ggtttcaaca	ngtcttctct	aaaaagggtg	ccccanggtt	540
attgtgtgga	gtctanggaa	notcatatcc	tcaggatgat	catttgtgtg	ttgggtccagt	600
gaaagcattt	cccaactggg	ccttcataaa	aactggggta	tttcaantga	ncacannaat	660
tcaacctatg	gatttaaang	tnnnanancc	anaaacctta	ngcaagctct	taanaantan	720
tgcanngtta	attaaactta	nctaagntgg	ctaatttntt	attcaangcg	gggcataagg	780
tttcateggc	tctaaattgn	ttaanatggn	ctgtaagntt	gtngaanata	tatccctggg	840
aagntnctaa	aatangtttt	ctngaactan	cngtgctnta	naanctnngn	ggggntnang	900
ggggatccgg	ggatccccc	caatanaagc	tntccngnnt	ngcncctnca	aaggngtaag	960
ccctgttngc	tnnaaaanaa	tccttncttg	caancnaatg	gatgtcntgg	ggtancttgg	1020
naacntttgg	tncccntnnn	cctttgnnnn	tatnaantnc	nggnctgttc	tccaactnna	1080
aaccttnnnn	nnnnaagacc	ccttnghaan	accctttttg	ntnanttttt	cnnctgang	1140
ngaanatnnc	tnnccnncnn	antnttg				1167

<210> 15  
 <211> 1148  
 <212> DNA  
 <213> Homo Sapiens

<400> 15

tctagatttt	tttttttttt	ttttgaattc	ttangcttgt	tttacaaaac	tttttattca	60
tcagagctgt	agtgaatat	catcattgta	attgatattc	tagcactaca	aaaggcacia	120
tgaagcttat	ttagtccag	tactggaaat	cagaggtaac	agcacatcct	tccttggaaca	180
tgctttactc	tgctgtagt	gtcatcacag	ttttgatttt	ctggataaga	agttcaccac	240
agcattttgt	cattcatctg	atagccatct	tccttgaagg	acattgcatt	cttcagcatt	300
aacagcgtgt	antttttctc	tctctctttt	cctgattacc	tcttttgaaa	ttctcaagac	360
atttggggga	agctttgcaa	atgccttcag	cctgggtccag	acttctttct	gaaaagtgtc	420
atcagggaaa	acttcagtaa	caagtccttg	nagcacatgc	ctctcccgtc	gttaacttct	480
ttccaaaaat	aagcatctct	gttgcttggg	ctgggctcat	tatcttccgn	aaagtgtgaag	540

anggagc	cttccggg	ac	tttgg	nctan	gtgac	ctaaa	tgg	tgtat	g	aaa	tgt	gc	600
cctgtc	agaa	tgcat	acac	ggaat	cnnnt	cnc	caang	agg	gtna	acn	ggn	natnccc	660
anaan	ctggn	ccant	tgnc	nctgn	annnc	anang	ncttn	ggg	naaa	atc	naat	nnnnnc	720
aancc	caaca	anatt	cccc	nccant	tnna	acngg	nnatt	aant	tttt	taa	cctt	ccncc	780
tccnan	tncc	aacca	agggg	ggaa	anntcc	aant	nnnnnt	tnccc	nnat	taatt	cccaa	840	
nnanc	nggn	nnnn	cnnc	natt	ccccng	gt	nana	acna	ctt	nnnn	ntt	nnntcca	900
ctttcc	ngng	naann	tttna	agt	nnnacn	cann	antttc	cagt	nn	tna	nncc	naann	960
ntta	aggg	nn	ntttcc	ttt	gggncc	nnnn	ttann	annnn	nnctt	ttg	nn	nannc	1020
naac	cttcc	g	nggg	ncacn	nn	cnagnnt	tt	caaa	nncc	nant	nnntt	ccccnnnn	1080
ntnn	ccaann	nngn	ncanct	gnnt	nnnnng	tncc	antnan	nngn	nn	tcna	ancn	ngcnnn	1140
ncnn	nttg												1148

&lt;210&gt; 16

&lt;211&gt; 1113

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 16

tctaga	aggt	gctg	ccagac	ggccc	cttga	gctg	gggttc	cgc	acccac	cttct	gctcc	60				
actgt	cttct	ccag	cga	ctg	gatg	cgcatc	tgct	cttcc	tcang	ctggc	ctgg	agggcc	120			
aacg	cttccg	cctg	ggcctt	gctc	cgga	ct	tg	ggcgat	cctc	gtttgc	can	ctgcagc	180			
ttct	cctccg	cgtg	ggcctt	cang	gcttg	tac	ctctggc	cctc	ctggg	gat	ccttgcc	240				
angta	atcct	ccag	cga	ctt	cagt	gac	tctt	ctgtt	tg	cggtagcc	ctc	gatcacc	300			
tcttt	ctgtt	tct	caaa	acg	ctt	gaag	agg	tcg	gaga	agg	actt	ctccat	ggag	ttcana	360	
tctgt	ggtaa	gtt	ggtctt	tt	ctttt	tana	actt	ttctgga	ttt	cagctt	gg	aaagtcc	420			
ttct	gcttct	ga	acttctc	cat	ggcctg	tac	aca	acct	ctt	cga	acct	gtcc	atgatc	480		
ttccc	agtt	cca	aggttct	tccc	gtggag	ctc	ctcac	ctg	ctc	ctca	gct	ccc	ggtt	540		
ctc	ctctgt	gtc	gccttta	cc	actg	catc	caa	agctctt	ctg	gctgtac	tg	ggan	caag	600		
tcc	actatn	ngt	ccgggn	gaca	aggg	tg	ggccc	ccaag	cgc	ggg	aaaa	act	ggggg	660		
ct	ntgccna	att	ccgggt	aca	acaca	at	tg	ngcgctt	ccc	gana	aaaa	aaaa	aaaaan	720		
gct	gtccaa	attt	ccggaa	ctt	ggcg	taa	at	cann	ggnc	aata	actgtt	tccc	ngtgt	780		
tnaaa	atntt	ttcc	gtcaa	aant	tgctaa	annt	actttt	naa	at	tttt	tn	cnn	ccccctt	840		
ttca	atccaa	aat	nanccca	tn	gnann	att	ccan	ccanna	ta	ana	acngg	nt	naaatcc	900		
ctt	nnnggg	ggga	attttg	ccca	antatn	aa	ann	cntac	cna	aaaa	accn	tcc	gnnttaa	960		
ntcc	naaa	ac	cctttt	caaa	ant	taa	acct	aann	nnan	ct	ttnn	nntaan	ccaa	anngtt	1020	
ncc	aaaa	aan	anctt	ngggg	tn	acca	aggc	aan	ann	gtt	ccc	ngg	ttaa	aatt	ttttac	1080
cgc	naaa	aat	tcana	naaan	tn	nnnttan	ntt								1113	

&lt;210&gt; 17

&lt;211&gt; 731

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 17

tctaga	gcct	tcccc	ggcca	tct	acagg	ca	ggat	gcggct	ggg	aaaa	aga	caact	ggaat	60
ttct	gaagg	ttgat	gggtcc	gc	acgg	ttga	ngat	tctacg	tg	gtt	ctctt	ggt	ccccctg	120
gtgt	gtgtgt	gtgt	gtggag	gang	ccgc	g	ccct	tagatn	ac	ctt	cttga	gct	cgctgta	180
cagg	accagc	acga	angcgc	cccc	atgcc		cgc	agga	ctg	ggacc	ag	cacc	cttgaa	240
naagg	ccttg	cccc	ctcat	ct	ctga	agat	ctt	ctccaa	can	tcga	cgg	tg	ccgtgta	300
cat	gatgtca	gct	ctttgc	gccc	ggactg		cat	catcatt	cg	cgcc	gca	ccg	ttcna	360
ggg	tangaca	ccag	ccggc	cac	ngncgtc		ac	ggtctgcg	cg	atcat	cca	gct	caccacn	420
atgt	gcgtgt	tctt	ggggtc	ngg	gancatn		cc	cttggccg	tat	cg	tanac	ncc	gaantaa	480
gcc	ccccgg	atat	natgat	gcc	ctgctg		tg	ccgaattc	cgc	ggtn	cca	ac	acaatggn	540
ncg	ttcccg	aaaa	aaaaaa	ata	aaaanct		nc	gtccaaat	ct	cg	gaactt	tg	gcntantc	600
atgg	gcatan	ctg	ttttccc	tgt	gtg	aaat	tn	ttccgct	ca	aca	atttg	ct	anaantaa	660

ttttcatttt tttgctcttc nnttatcanc caaanntact cccattantt attccaantn 720  
tatnacaaag g 731

<210> 18  
<211> 1145  
<212> DNA  
<213> Homo Sapiens

<400> 18

tctagactat	cttcttcac	atcactctct	gaatcatgaa	cagtaattga	ggttggtttt	60
actacacgct	gaagaccact	gggtcctgct	tggtcctcat	caacatccac	aggaataatt	120
gcctggctgt	gagctggagt	attatttcca	ctctcgcca	ccacctctcc	atcttcttgg	180
acgatgtctt	ccatctcatt	taatgcgtca	gctgcaaact	gctgctctcc	tggctgcaga	240
tcttgccgaa	agtcattctc	ctcgtctgag	tcactctggat	gatggtgatt	gttgctcgtg	300
atggtggcat	tggtattctg	ggcattatta	tcgtcattgt	tggagttctg	gttgctaaca	360
agagctgatg	aaacaccaat	tcctgtgcct	gcactcagac	caactcgagc	acaacccttg	420
ggtggttcac	gaaacatctg	atccagtga	ataaaactcta	ggctgggtaa	taattcaata	480
aactggccaa	aagagtcacg	cttcaaagca	tggcaccgta	ctaggttgat	atcaaccaat	540
cgagtccatc	ttgagtgggc	tgagattcaa	ttgtatgggt	tgtgtanatn	agggcaattg	600
taaattgcc	gatatttgnt	acaggnaaaa	aacttcaatt	gactgctttc	atccctatat	660
caagtgatga	taccaagatt	tttctacaaa	atcaagccaa	accaatactt	caccaagatt	720
cggcaattan	ccaattccgg	ctcctgttnn	caaaaaactc	atctncaatt	atcccaanat	780
nnaaggggnt	tcaaaactgg	ggggaaaact	ccaaantcct	gncaaacctt	tttnggggca	840
nntnnnnnnn	caccaannct	tttggtttan	gggaangggg	nggntttccg	aanttttaag	900
gttancctaa	cggggnnan	cnanttantg	nntnnngggg	nanccaannt	tttannttta	960
annngncaat	ttttttnnaa	ncnccccaan	nannaaanna	annnntgnna	anttttttna	1020
aaancncnct	ggntttccaa	antggtnttt	ttaaaaaaan	nttggggntn	annncnnncc	1080
nangggngang	gggnannccn	nncnaatttt	taannggttc	caaanttttn	gggganntnn	1140
ntttt						1145

<210> 19  
<211> 1106  
<212> DNA  
<213> Homo Sapiens

<400> 19

tctagactat	cttcttcac	atcactctct	gaancatgaa	cagtaattga	ggttggtttt	60
actacacgct	gaagaccact	gggtcctgct	tggtcctcat	caacatccac	aggaataatt	120
gcctggctgt	gagctggagt	attatttcca	ctctcgcca	ccacctctcc	atcttcttgg	180
acgatgtctt	ccatctcatt	taatgcgtca	gctgcaaact	gctgctctcc	tggctgcaga	240
tcttgccgaa	agtcattctc	ctcgtctgag	tcactctggat	gatggtgatt	gttgctcgtg	300
atggtggcat	tggtattctg	ggcattatta	tcgtcattgt	tggagttctg	gtgctaacaa	360
gagctgatga	aacaccaatt	cctgtgcctg	cactcagacc	aactcgagca	caacccttg	420
gtggttcacg	aaacatctga	tccagtga	taaacctagg	ctgggtaata	attcaataaa	480
ctggccaaaa	gagtcagct	tcaaagcatg	gcaccgtact	angttgatat	caaccaatcg	540
agtccatctt	gagtgggtctg	agatccaatt	gtatgggggt	gtgtanatga	nggcaattgt	600
aaattgccaa	gatattttga	tacaggaaaa	aacttcaatg	gactgctttc	atccctatat	660
cantgatgat	accaaggatt	ttctancaca	tcaagccaaa	accaatactt	naacaagatt	720
cgcaataacc	attctgtctc	tgtnncaaaa	actcaatcct	acaatatcct	aaaatnaaag	780
ggnttcaaaa	ctgggggaaa	actccnaaat	tcctgccaat	ccttttagggg	aaaaaaaaag	840
acaccaatcc	tttgggttaa	gggaaaggnt	ggattcngaa	actttcaagt	taaccttang	900
ggcaacaan	ttaangnatt	aagggttaacc	aaananttta	aatttcaaag	nngcaatttt	960
ttgcaancnt	nccaaaanaa	atanggttgn	aaaattttct	aaaaccaacc	tgatttncaa	1020
aatggtcttt	aaaaaaaaatt	ttggntnaaa	accttcaaag	gaaaagggaa	cccaaccaan	1080
tttcaaan	nttccaaant	tnngtt				1106

<210> 20  
 <211> 484  
 <212> DNA  
 <213> Homo Sapiens

<400> 20  
 acctgaaagc aagcccatta tgacaagctc agaggctttt gaacctccaa aatatttaat 60  
 gcttgggtcaa caggcagtag gtggagttcc cattcagcct tccgtaagga ctcagatgtg 120  
~~gcttacagag cagctgcgga caaatccttt ggaaggtaga aatacagagg attcttaag 180~~  
 tttagctcct tggcaacagc agcaaattga anactttcga caaggaagtg aaacaccaat 240  
 gcaggttttg actggatcat ctggtcaaag ttattcacct ggctatcagg atttcagtaa 300  
 gtgggaatcn atgttgaaaa tnaaagaagg acttctaagg cagaaagaaa ttgtantcga 360  
 tcggcagaag caacnaatta cccacctgcn tnanangata agggataatg aattaccggc 420  
 tcnnatgcc atgttaggac attatgtnaa ttgtgaggat tcttatgtgg ctagtttgca 480  
 ccac 484

<210> 21  
 <211> 355  
 <212> DNA  
 <213> Homo Sapiens

<400> 21  
 cttccaagtt gctcttatca ggtactgctg atgggtgcaga cctcaggaca gtagatccag 60  
 aaacacaggc tagactggaa gctttactag aagctgcagg aataggaaaa ttgtccacgg 120  
 ctgatggtaa agcctttgca gatcctgaag tacttcggag gttgacatcg tctgttagtt 180  
 gtgcgttggg tgaanctgct gctgcactta cccgtatgag agctgaaagc acagcaaatg 240  
 cagggcagtc ggacaaccgc agtttgccng aagcctgttc anaaggagat gtaantgctg 300  
 tgcgaaagtt actcattgaa gggcgaagtg tatttgaact ccngaggaa gggga 355

<210> 22  
 <211> 1070  
 <212> DNA  
 <213> Homo Sapiens

<400> 22  
 atgaaaaaga acagataaaa ccacctaat tggttctgaa agataaagta aagcccaaac 60  
 aggatacaaa atacgatcctt atattagatg agcaggccga agactcaaaa tcaagtcact 120  
 cacacacaag tnaaaaacac aagaagaaaa cccatcactg ttctgaagag aaagaagatg 180  
 aggactacat gccaatcaaa aataactaatc aggatatcta tagagaaatg gggtttggtc 240  
 actatgaaga agaagaaagc tgttgggaga aacaaaagag tgaaaagaga gaccgaactc 300  
 agaaccgaag tcgtagccga tctcgagaga gggatggcca ttatagtaat agtcataaat 360  
 caaaatacca aacagatcctt tatgaaaagag aaaggagtta aaagagagac cgaagcagaa 420  
 gtcnaagaa gtcnaagat aaagaaaaat ctaagtntng atgaaagatg aagaggcaga 480  
 attgagaggc taacatattt actcttgtct aacttaagag tgccaggaaa gcagatgctt 540  
 agattttgtg tccaagcttg ttattttttt canactagga ttatgggtct tagattaata 600  
 cngatnatat agagcacgga aagataaaga attgaacatt ttcttngtat acttttttac 660  
 actaatttca ttgctatacn taaanggtag tnttcatttt ctgaagtcta acattttcac 720  
 tcttttttta atgnagtatt tcatactaca aaaatacatn nacgtatata taaagggata 780  
 ataaangtan atatntgtgt antcatcagc cagcttaaga tacagatggt gtcgacattt 840  
 tagaagttcc ctaaggccct ctccctctca aataattatt tggaaatttg tgtttgtcat 900  
 ttgtctatta tagttttaca acanacgtat gtatntgtaa gtgaaatggt aantttgtat 960  
 gtttctgaat tttatataaa tggcaaaang ttacttntg tgactttctt tcatttttat 1020  
 tgntanatag tattatataa atatactaca acttattcat ttcttgatgg 1070

<210> 23

<211> 861  
 <212> DNA  
 <213> Homo Sapiens

<400> 23

gaaagaccca	ggagaagccg	cccaaagaac	tggatcaatga	gtgggtcattg	aagataagaa	60
aggaaatgag	agttgttgac	aggcaaataa	gggatatcca	aagagaagaa	gaaaaagtga	120
aacgatctgt	gaaagatgct	gccaagaagg	gccagaagga	tgtctgcata	gttctggcca	180
aggaqatgat	cagggtcaagg	aaagctgtga	gcaagctgtg	tgcatccaaa	gcacacatga	240
actcagtgtc	catggggatg	aagaaccagc	tcgcggtctt	gcgagtggct	ggttccctgc	300
agaagagcac	agaagtgatg	aaggccatgc	aaagtcttgt	gaagattcca	gagattcagg	360
ccaccatgag	ggagtgtgcc	aaagaaatga	tgaaggctgg	gatcatagag	gagatgttag	420
aggacacttt	tgaagcatg	gacgatcagg	aagaaatgga	ggaagaagca	gaaatggaaa	480
ttgacagaat	tctctttgaa	attacagcag	gggccttggg	caaagcacc	agtaaagtga	540
ctgatgcctt	tccagagcca	gaacctccag	gagcgatggc	tgacctagag	gatgaggagg	600
aggaggaaga	ggnnttgag	gccatgcagt	cccggctggc	cacantccgc	agctaggggc	660
tgccnacc	gctgggtgtg	cacacactcc	tntcaagagc	tgccatttta	tgtgtntctt	720
gcactacacc	tctgttgatg	ggactaccat	tttgagagaag	gttctgtttg	tctcttttca	780
ttctctgccc	aggttttggg	atcgcaaagg	gattgttctt	ataaaagtgg	cataaataaa	840
tgcatcattt	ttaggagtat	a				861

<210> 24  
 <211> 985  
 <212> DNA  
 <213> Homo Sapiens

<400> 24

agggtcccg	ggaagaaaca	ctggcatttg	tccttttgc	tcggcttctg	gaggcagana	60
ctctgagccc	aggagagacc	ttctgcagcc	ccatttcctc	aaaaatccaa	cctgcccagg	120
tgccgggtca	tgagctgtgc	tcaggaagct	ggaatctgac	cctggtggcg	tcgggcccag	180
tctccatggc	agccgagcat	ttattaccgg	ggcctccacc	cagcttggca	gactttanac	240
ttgaggctgg	aggaaaggga	actgaacgcg	gttctgggag	cagcaagccc	acgggtagca	300
gcggaggccc	cagaatggcc	agtttntttc	ccaagaccaa	atttaatgag	tacaaggatg	360
ttcttcctcg	tatgacaagc	agcagagggg	aagataaaag	ccaccgactt	catggtggcc	420
atgagtgccc	tgggggccag	cccgcagcca	ggggaggtgc	agcggcacct	gcagaccac	480
gggatagacg	gaaatggaga	gctggatttc	tccacttttc	tgaccattat	gcacatgcaa	540
ataaaacaag	aagacccaaa	gaaagaaatt	ctctagcca	tggtgatggg	ggacaaggag	600
aagaaagggt	acgtcatggc	gtccgacctg	cggtcaaaac	tcacgagtn	gggggagaa	660
ctcaccacaca	aggaagtggg	tgatcttttc	agggaagcag	atatcgaacc	caatggcaaa	720
gtgaagtatg	atgaatttat	ccacaagatc	acccttnctg	gacgggacta	ttgaaggagg	780
agaatgggag	agcctcccct	gggcctgaaa	acttgagca	attaattttt	tttaaaaagt	840
gttcttttca	cttgggagag	atggcaaaca	cagtggcaag	acaacattac	ccaactatag	900
aagagaggct	aactagcaac	aataatagat	gatttcagcc	atggtatgag	tagatcttta	960
ataaaagatt	tgtattgatt	ttatt				985

<210> 25  
 <211> 545  
 <212> DNA  
 <213> Homo Sapiens

<400> 25

ctctctgctg	catgcactat	tgctgtaagt	cttgctggaa	tgagtacctg	acaactcgga	60
tcgagcagaa	ccttgttttg	aattgcacct	gccccattgc	cgactgcccc	gcccagccca	120
cgggagcctt	cattcgtgcc	atcgtctcct	cgccagaggt	catctccaag	tatganaagg	180
cgctcctgcg	tggtatgtg	gagagctgct	ccaacctgac	ctggtgcacc	aacccccagg	240

gctgcgaccg catcctgtgc cgccagggcc tgggctgtgg gaccacctgc tccaagtgtg	300
gctggggctc ttgettcaac tgtagcttcc ctgaggcaca ctacctgct agctgtggcc	360
atatgtctca gtgggtcgat gacggtggct actatgacgg catgagcgtg gaggcgcana	420
ncaagcacct ggccaagctc atctccaagc gctgtcccag ctgtcaggct cccatcgaga	480
anaacgaagg gtgcctgcac atgacctgtg ccaaattgtaa ccatggattc tgctggcgct	540
gcctc	545

&lt;210&gt; 26

&lt;211&gt; 374

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 26

gggaaaagg cctccacatt gatcagctgg tttgtctggt gctggaggcc tgnccagaagg	60
gtccaaatcc tcttgaacc ctgggccaca ctgttgctgg ggggtgtggcc tgtaccacta	120
canatgtcct ctcttgcntc ctgcacctct taagccagg ctacntgaaa cngcgtgatn	180
accggcccca aatcctgatg tatgccgctc catancccat ggggccctgc cggggtcntg	240
cacatntcnc tttctgtggc agccanagcc aaacctccca ncccnccca aaacctgtgg	300
ctacctggnn atctctacan ctgccttgen ngccgctttn tnanccncca ctaaaatnta	360
acggttgatt aacc	374

&lt;210&gt; 27

&lt;211&gt; 552

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 27

cacaaacctt gcaatccaag ggaaaaggag cgaatccaaa atgcaggagg cagcgtgatg	60
atacaacgtg ttaatggttc attagcagta tctcgtgctc tgggggacta tgattacaag	120
tgtgttgatg gcaagggccc aacagaacaa cttgtttctc cagagcctga ggtttatgaa	180
attttaagag cagaagagga tgaatttatc atcttggtt gtgatgggat ctgggatggt	240
atgagtaatg aggagctctg tgaatatgtt aaatctaggc ttgaggtatc tgatgacctg	300
gaaaatgtgt gcaattgggt agtggacact tgtttacaca agggaagtgc agataacatg	360
agtattgtac tagtttgctt ttcaaagtct cccaaggtct cagatgaagc ggtgaaaaaa	420
gattcagagt tggataagca cttggaatca cgggttgaag anattatgga gaatctggcg	480
aagaangaat gcctgatctt gcccatgtca tgcgcattct gtctgcagaa aatatcccaa	540
atttgctcc tg	552

&lt;210&gt; 28

&lt;211&gt; 502

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 28

ctgacctgcc cactctggaa gacctcaga agcagagcca gcagcttaag gattctgagt	60
tgaagagcac agagctgcag gagaaagtga ctgagctgga gagggtgctg gaggagaccc	120
aggcaatctg cagagagaag gagattcaac tggaaaagcct gaggcagaga gaagcagaat	180
tctcctccgc tggacatagc ctgcaagata aacagtctgt ggaggagacc agtggagaag	240
gtccagaagt ggaaatggag tcctggcaga agcgatacga ttcgctccaa aagattgtgg	300
agaagcagca gcagaagatg gatcagttgc gctcacaagt ncagagccta gagcaggaag	360
tggctcnaga agaaggaaca agccaggccc tgagagagga ggcccagcga agggattcag	420
ccctgcagca gctgcgcaca gccgtgaagg anctttcagt gcnaaaccag gacttgattg	480
agaagaatct gacactccag ga	502

&lt;210&gt; 29

<211> 537  
 <212> DNA  
 <213> Homo Sapiens

<400> 29  
 gctttgggga ctcagtgga cgtcttgact gctggcttcc ggtggtgaaa ttcacgagg 60  
 agcaatttga gcagtacctt agggatgaga gtggcctgaa ccggaagaac atccaggact 120  
 cccgagtcca ctgctgcctc tacttcatct cacccttcgg ccgggggctc cggcccttan 180  
 atgtggcctt cctccgggca gtacacgana aagtcaacat catcccagtc attggcaaag 240  
 cggatgctct gatgccccag gaaacccagg ccctcaagca gaagatccgg gatcagttga 300  
 aggaagagga gatccacatc taccagttcc ccgaatgtga ctctgatgaa gatgaagact 360  
 tcaagaggca ggatgcagan atgaaggaaa gcatcccttt tgcagtcgtg ggatcatgcc 420  
 aagtgggtgag ggatggcggg aaccggccgg tgaggggacg ccgtactcc tgggggaacg 480  
 tggaagtgga naaccacatc nctgcgattt cctgaacctg cgacggatgc tgggtgca 537

<210> 30  
 <211> 3872  
 <212> DNA  
 <213> Homo Sapiens

<400> 30  
 ccattgcaca cagacaggca gcatggctag caaacgaaaa tctacaactc catgcatggt 60  
 tcggacatca caagtagtag aacaagatgt gcccgaggca agtagacagg gccaaagaga 120  
 aaggaatcgg cacaccacag cctgacgtgg ccaaggacag ttgggcanca gaacttgaaa 180  
 actcttccaa agaaaacgaa gtgatagagg tgaaatctat gggggaaagc cagtccaaaa 240  
 aactccaagg tggttatgag tgcaaatact gccctactc cagcgaacac ctgaacgagt 300  
 tcacggagca tgtcgacatg cagcatccca acgtgattct caacccctc tacgtgtgtg 360  
 cagaatgtaa cttcacaaac aaaaagtacg actccctatc cgaccacaac tccaagtcc 420  
 atcccgggga ggccaacttc aagctgaagt taattaaacg caataatcaa actgtcttgg 480  
 aacagtccat cgaaaccacc aaccatgtcg tgtccatcac caccagtggc cctggaactg 540  
 gtgacagtga ttctgggacg tcggtgagta aaaccccat catgaagcct ggaaaaccaa 600  
 aagcggatgc caagaagggtg cccaagaagc ccgaggagat cacccccag aaccacgtgg 660  
 aagggaccgc ccgcctggtg acagacacag ctgagatcct ctgagactc ggcggggtgg 720  
 agtcctcca agacacatta ggacacgtca tgccttctgt acagctgcca ccaaatatca 780  
 acctgtgccc caaggtccct gtcccactaa atactaccaa atacaactct gccctggata 840  
 caaatgccac gatgtcaac tctttcaaca agtttcctta cccgaccag gctgagttgt 900  
 cctggctgac agctgcctcc aaacacccag aggagcacat cagaatctgg tttgccacc 960  
 agcgcttaaa gcatggcatc agctgggtccc cagaagaggt ggaggaggcc cggaagaaga 1020  
 tgttcaacgg caccatccag tcagtacccc cgaccatcac tgtgctgccc gccagttgg 1080  
 ccccacaaa gatgacgcag cccatcctcc agacggctct accgtgccag atcctcggcc 1140  
 agactagcct ggtgctgact caggtgacca gcgggtcaac aaccgtctct tgctccccc 1200  
 tcacacttgc cgtggcagga gtcaccaacc atggccagaa gagacccttg gtgactcccc 1260  
 aagctgcccc cgaacccaag cgtccacaca tcgctcaggt gccagagccc ccacccaagg 1320  
 tggccaaccc ccgctcaca ccagccagtg accgcaagaa gacaaaggag cagatagcac 1380  
 atctcaagge cagctttctc cagagccagt tccctgacga tggcgagggt taccggctca 1440  
 tcgaggtgac tggccttgcc aggagcgaga tcaagaagtg gttcagtgac caccgatatc 1500  
 ggtgtcaaag gggcatcgtc cacatcacca gcgaatccct tgccaaagac cagttggcca 1560  
 tcgcgccctc ccgacacggg cgacagtatc atgcgtaccc agactttgccc cccagaagt 1620  
 tcaaagagaa aacacagggg caggttaaaa tcttggaaga cagctttttg aaaagtctct 1680  
 ttctaccca agcagaactg gatcggttaa ggggtggagc caagctgagc aggagagaga 1740  
 tcgactcctg gttctcggag aggcggaagc ttogagacag catggaacaa gctgtcttgg 1800  
 attcatggg gtctgggcaa aaaaggccaa gatgtgggaa gcccacaatg gtgctctgtc 1860  
 tcgactcgaa cagctctccg gtgcccagtt aacaagttct ctgcccagcc cttcgccagc 1920  
 aatttgcaaa aagtcaagaa cangttcac tctgaagga gcacgtttgc aanaaaccca 1980  
 nttgggctac tcccangag taacgaccag ttaaacggg ccaagancng gnetgggtcc 2040



cgaactgaaa	attgtgcntt	tgggttcang	gngaacaaga	nngcttnccn	gaaaacgggg	2100
aaccgttaaa	attggnnttg	agcaaatnnc	aagnaaccaa	gccaatggg	caaaattgnt	2160
caacgggtta	ccnaatgccg	nttcnaagg	aaanncaaca	aanacccaan	ggccgganan	2220
gccc aaagaa	acgggggntt	aatgttggtt	cccacaatta	ttacaaggga	cccccaaaaa	2280
agctcttgcg	aaggaggact	ttgganaaan	ttgttgacc	agggtaaaan	tagggcaggg	2340
accagcaaaa	aagactgttt	tcccagcaaa	gcccttcaga	ggccaccttc	agaccgttca	2400
gagggcagca	gccgggacgg	ccagggtagc	gacgagaacg	aggagtccgag	cgttgtggat	2460
tacgtggagg	tgacggtcgg	ggaggaggat	gccatcttca	gatagatcag	atagctggag	2520
tcaggntgcg	gcagaaggtg	tgtcggaact	ggctgaatca	gactccgact	gcgtccctgc	2580
agaggctggc	caggcctaga	cagggaagtc	tgttagaact	gctgtgctga	tcaacgggac	2640
gctccgtctt	tgaagaaaga	agagatggtc	tctccccagc	catggggccac	ccttgccagt	2700
gactccaagt	ggaactactt	agctcgctg	tgcctggagg	gtgcgggaag	tccagcgact	2760
ctcagacgca	cctcccagag	gaccggtggt	aattgttcat	agtgccaaag	tcctactact	2820
gcgttttcaa	tgggtccctg	tacatagttt	gctcctctgc	cctagccctc	acctcttgct	2880
atactggaac	cgatttgtac	aatgtgggaa	ttttgttacc	tttttaatca	agggcaactt	2940
ccttttccag	cactaccatt	gtaagggttt	tttcaggagg	gagggtaac	caccttgctt	3000
ttctcttttc	tctttttctt	ttttttattt	ttgttttatt	aatttgggga	aaggggtgtt	3060
agcattagtg	ccatgatata	tactggattt	taagtaggga	gactttattt	ttaaaggtag	3120
gttgaaaattt	gggagatttc	tccgcaggaa	gggctgaaat	ccaggcccct	gtctcaactt	3180
ggagagaggt	gacagacggc	agatcttcca	aatcaaattc	ctttccagtt	cttcccctgg	3240
ctgccttttt	gggggtccct	gccttagccc	cacacaaggc	tttctgaact	gccaagaggg	3300
gatctggctt	ctcaactgct	cggcctcttg	ggccaggctg	tgcccagcca	gccctgggag	3360
aactgggtag	cagggtggctg	acttctttaa	gcacctttct	aaataccagc	agaagaggct	3420
cccgcctctg	ttagcatgat	cagtactatt	gtgacattaa	aacaacaaca	ataagatctt	3480
cctatctgga	gggtacagag	gtgaatggct	ttggttttca	tttctctttc	ttcactgctt	3540
ttctcgggtg	ggtatttgac	aagatttttag	ntnaaagcct	caccatgaat	tgattttttt	3600
tgtttgngng	ngtgtttgtt	ttgggacaat	tttagatacc	tgngtgcant	ttttcagtta	3660
gtcctaantt	ttaaaagaag	ggnaaccaag	nganatattt	ggtgtaagt	ttgcagtatg	3720
aannttctggt	tgcaatccct	ccccgtccca	cantgcccc	catttgagta	caccgcacaa	3780
gtcaaacgnt	aggnagtttg	nataaaacca	atttttctaa	nttgttgntc	atttgttgta	3840
antcaataaa	gcnaaganta	aacattttta	tt			3872

<210> 31  
 <211> 655  
 <212> DNA  
 <213> Homo Sapiens

<400> 31						
gaaatcatgg	gagcacaaag	aagaaataag	tgaagcagag	ccaggggggtg	gttccttggg	60
agatggaagg	ccgccagagg	aaagtgccca	tgaatgatg	gaggaggaag	aggaaatccc	120
aaaacctaa	tctgtggttg	caccgccagg	tgctcctaag	aaagagcatg	taaagttagt	180
attcattggg	cacgtanatg	ctggcaagtc	aaccattgga	ggacaaataa	tgtatttgac	240
tggaaatggt	gacaaaagga	cgcttgaaaa	gtatgaaaga	gaagctaaag	agaaaaacag	300
agaaaacttg	tacttgtctt	gggccttaga	cacaaatcag	gaagaacgag	acaagggtta	360
aacagtagaa	gtgggtcgtg	cctattttga	aaccgaaaag	aacatttcac	aattctagat	420
atgaatccca	gaacactgag	ctcaaaaccc	aaagcccaga	atttgaagct	caaagtccn	480
aattccanga	aggtgctggg	atgcttctga	accccagga	aaagatcctt	tgaatatctc	540
cgtaggagtt	caccccttg	actccttcac	tcaggggttt	ggggagcacc	cacaggggac	600
ctgcccata	ggccaccttt	tgagatgccc	acaggggccc	tgctgtctac	accgc	655

<210> 32  
 <211> 466  
 <212> DNA  
 <213> Homo Sapiens

<400> 32  
 gaaaggtggc cagaggaagg gacagctgac ctggcacaat ctgggcttga agggggcaca 60  
 acaagagcgt ctgtgagctg gtgctgtctg gagggatctt ggctcctctc cggctatctg 120  
 accttctga agacctgctc gcacactgca tcccttgagc tcagttccag ctgctgccga 180  
 attcggcacg agctcgtgcc gaattcggca cgagggaagc actactccca gcgctgggcc 240  
 caggaggacc tgctggagga gcagaaggat gggggccggg cagcggctgt ggctgacaag 300  
 aagaaaggcc tcatggggcc actgaccgaa ctggacacta aagatgtgga tgccctgctg 360  
 aagaagtctg agggccagca tgaacagccg gaagatggat gcccctttgg tgccctgacg 420  
 cagcgctcc tgcaggccct ggtggaggaa aatattatct tttccc 466

<210> 33  
 <211> 293  
 <212> DNA  
 <213> Homo Sapiens

<400> 33  
 gtccggcgccc tacatgagaa gcatgatgca gtcgctgagc cagaatccag atttggtgc 60  
 acagatgatg ctgaatagcc cgctgtttac tgcaaatcct cagctgcagg agcagatgag 120  
 gccacagctc ccagccttcc tgcagcagat gcagaatcca gacacactat cagccatgtc 180  
 aaacccaaga ccaatgcagg ctttaatgca gatccagcag gggctacaga cattagccac 240  
 tgaagcacct ggctgatcc cgagcttcac tccaggtgtg ggggtggggn tct 293

<210> 34  
 <211> 456  
 <212> DNA  
 <213> Homo Sapiens

<400> 34  
 caaagcctta gtcagagcc tgctagaatg tgtccagggt tacagctata ctgcacagca 60  
 cttcccatgc tagtctctgt aaaacgcaaa aagccatctt caggagcagt aggcaagtca 120  
 cattcaattg aaatgcagga tgggtgactg ccattccaag ttccatcttc ctggcagatc 180  
 agcacagggt tccccagaag ttcatatcct ggattacagg tgtatgaaac catggtacca 240  
 tacagaaagt ttgatgaatg tgtagcagga gactcctttg tattttccca ggttttagcc 300  
 actgtcctca aatgataagg aggggtgagga gtcacatatg gaacttccat catgtcgtct 360  
 tcttgctcaa aatatccctg gtcactcttg agtttagtac agtctccaaa atctatatga 420  
 ggaggggaggc cacagtctat tggcatacca aatctt 456

<210> 35  
 <211> 679  
 <212> DNA  
 <213> Homo Sapiens

<400> 35  
 ggcgcgcttc gtgtccgagg tcactagttt cccggtagtt cagctgcaca tgaatagaac 60  
 agcaatgaga gccagtcaga aggactttga aaattcaata aatcaagtga aactcttgaa 120  
 aaaggatcca ggaaacgaag tgaagctaaa actctacgag ctatataagc aggccactga 180  
 aggaccttgt aacatgcccc aaccagggtg atttgacttg atcaacaagg ccaaatggga 240  
 cgcattggaat gcccttgcca gcctgccccaa ggaagctgcc aggcagaact atgtggattt 300  
 ggtgtccagt ttgagtcctt cattggaatc ctctagttag gtggagcctg gaacagacag 360  
 gaaatcaact gggtttgaaa ctctgggtgt gacctccgaa gatggcatca caaagatcat 420  
 gttcaaccgg cccaaaaaga aaaatgccat aaactactgag atgtatcatg aaattatgag 480  
 tgcacttaaa gctgccagca aggatgactc aatcatcact gttttaacag gaaatggtga 540  
 ctattacagt agtgggaatg atctgactaa cttcactgat attccccctg gtggagtana 600  
 ggagaaagct aaaaataatg ccgttttact gaagggaatt tgtgggctgt tttatagaat 660  
 ttcctaagcc tctgattgc 679

<210> 36  
 <211> 689  
 <212> DNA  
 <213> Homo Sapiens

<400> 36  
 ctaaaccagt ggacatatca ggccatggtc cacgaactac taggcataaa caacaatcgg 60  
 attgatcttt ccagagtgcc gggaatcagt aaagacttaa gagaagtggc cctatctgct 120  
 gaaaatgatg aattctatgc taataatatg tacctgaact ttgctgagat tggtagcaat 180  
 ataaagaatc tcatggaaga ttttcagaag aagaaaccaa aagaacagca aaaactagaa 240  
 tcaatagcag acatgaaggc gtttggtgag aattatccac agttcaagaa aatgtctggg 300  
 actgtttcaa agcatgtgac agtggttgga gaactgtctc gattggtcag tgaacggaat 360  
 ctgctggagg tttcagaggc tgagcaagaa ctggcctgtc aaaatgacca ttctagtgtc 420  
 ctccagaata taaaaaggct tctgcagaac cccaaagtga cagagtttga tctgcccgc 480  
 ctggtgatgc tttatgcttt acattatgag cgacacagca gcaatagcct gccaggacta 540  
 atgatggnc ctaggaataa aggtgtttct gagaagtatc gaaagctcgt gtctgcagtt 600  
 gttgaatatg gtggtaaaaa gagtcagagg aagtgcctc ctcagcccca aagatgctgt 660  
 tggctatcac caacaattc ctcaaaggc 689

<210> 37  
 <211> 443  
 <212> DNA  
 <213> Homo Sapiens

<400> 37  
 ccacgcccgg ccccgagca ggcttttacg catgccccgc gcgccccctt gtgtccggaa 60  
 tttattcctt cgggtgggtt cgcggtctag ctgaccaaga acggaactgg ggactttcgc 120  
 agtgagagtt acagctctta aagatggcac cgaccaggc cgggcgaggc ggctcaggcc 180  
 tgcaatccca gcactttggg aggcggaggc aggtgaatca cgaggtcagg aaatcgagac 240  
 catcctggct aacatggtga aacccgtct cactaaaaa tacaaaaaat tagccaggca 300  
 tgggtggctg cacctgtagt ccagctact tgggaggctg agccaggaaa gtggcatgaa 360  
 cccgcgaggc agagcttgca ataagccgag atcgtgcca tgcactccag cctgggcaac 420  
 agaaggagac actgtctcaa aaa 443

<210> 38  
 <211> 442  
 <212> DNA  
 <213> Homo Sapiens

<400> 38  
 ctgcctcgg agcagccatg atggaaggcc tggacgacgg cccggacttc ctctcagaag 60  
 aggaccgagg acttaaagca ataaatgtag atcttcaaag tgatgctgct ctgcagggtg 120  
 acattttctga tgctcttagt gagcgggata aagtaaaatt cactgttcac acaaagattc 180  
 caccagcacc accaagacct gatatttgatg cttcaaggga aaaactacag aagcttggtg 240  
 aaggagaagg gtcaatgacg aaggaagaat tcaaaaagat gaaacaggaa ctggaagctg 300  
 aatatttggc aatattcaag aagacagttg cgatgcatga agtgttcctg tgcgtgtg 360  
 cagcacatcc tattttgaga agagatttaa atttccatgt cttcttgga tataatcaag 420  
 atttgagtgt gcgaggaaaa aa 442

<210> 39  
 <211> 692  
 <212> DNA  
 <213> Homo Sapiens

<400> 39

```

cagggacagg ccctatctta ttttttttc catcttcac atccacttct gcttacagtt      60
tgctgcttac aataacttaa tgatggattg agttatctgg gtggtctcta gccatctggg      120
cagtgtgggt ctgtctaacc aaagggcatt ggccctcaaac cctgcatttg gtttaggggc      180
taacagagct cctcagataa tcttcacaca catgtaactg ctggagatct tattctatta      240
tgaataagaa acgagaagtt tttccaaagt gttagtcagg atctgaaggc tgtcattcag      300
ataaccagc ttttcctttt ggcttttagc ccattcagac tttgccagag tcaagccaag      360
gattgctttt ttgctacagt tttctgcaa atggcctagt tctgagtag ctggaaacca      420
gagagaaaga ggatccagga tgtacttggg tgaggaggcc tggcttatct aggaagtcgt      480
gtctgggggt cttattgctg ctccatacag ctgtacgtca gccccttggc cttctctgta      540
ggttcttggc ancaatgagc agctttcact caagtgcac aagtaattac tgagtcctaa      600
tttgatagcc accaactgta cctgggtang caaagtcaga tttttgagaa nctttttcct      660
gatttgaagt ttttaattacc ttaatttcct tt                                  692

```

<210> 40  
 <211> 619  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 40
gaggcaccag attctgctga ggggaccacc cttacagtgc tgectgaagg tgaggagttg      60
cccctgtgtg tgagtgaag caatggcctg gagctccac cctcagcagc atctgatgag      120
ccacttcagg agccactgga ggctgacagg acctcggaag agctgacaga ggccaagacc      180
ccaacctcca gccagagaa gccacaggaa ctgcgttacag ctgagggttg agctccatcc      240
acctcatctt cagccacttc ctgcctgag ggctcctcac ctgcccagacc tctcggcgt      300
cgcaccagtg ctgatgtgga aattaggggt caagggactg gtcggccagg acaaccacca      360
ggcccccagg tgcttcgaaa gctgccagga cggctggtaa ctgtggtaga ggaaaaggaa      420
ctgggtgccc ggcgccggca gcagcgggga gctgccaanc accctagtgc ctgggggtctc      480
tgagactagt gccagcccg gaagcccgtc tgtccgcagc atgtcanggc canaatctc      540
ccctcccatt ggtgggccc gtgaaagctg ctcttcac cncactgcnc actccanccc      600
agnagccctt cattgcneg                                           619

```

<210> 41  
 <211> 153  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 41
Pro Glu Ser Lys Pro Ile Met Thr Ser Ser Glu Ala Phe Glu Pro Pro
 1             5             10             15
Lys Tyr Leu Met Leu Gly Gln Gln Ala Val Gly Gly Val Pro Ile Gln
 20             25             30
Pro Ser Val Arg Thr Gln Met Trp Leu Thr Glu Gln Leu Arg Thr Asn
 35             40             45
Pro Leu Glu Gly Arg Asn Thr Glu Asp Ser Tyr Ser Leu Ala Pro Trp
 50             55             60
Gln Gln Gln Gln Ile Glu Phe Arg Gln Gly Ser Glu Thr Pro Met Gln
 65             70             75             80
Val Leu Thr Gly Ser Ser Arg Gln Ser Tyr Ser Pro Gly Tyr Gln Asp
 85             90             95
Phe Ser Lys Trp Glu Ser Met Leu Lys Lys Glu Gly Leu Leu Arg Gln
100            105            110
Lys Glu Ile Val Asp Arg Gln Lys Gln Ile Thr His Leu Ile Arg Asp
115            120            125
Asn Glu Leu Pro Ala His Ala Met Leu Gly His Tyr Val Asn Cys Glu
130            135            140

```

Asp Ser Tyr Val Ala Ser Leu His His  
145 150

<210> 42  
<211> 95  
<212> PRT  
<213> Homo Sapiens

<400> 42  
Ile Leu Leu Glu Phe Tyr Leu Trp Gln Ile Gly Arg Tyr Ile Phe Val  
1 5 10 15  
His Val Asn Asn His Ile Tyr Ile Lys Leu Tyr Asn Cys Thr Phe Leu  
20 25 30  
Thr Ala Leu Ser Gln Val Ala Leu Ser Phe Pro Ser Ile Asn Gly Leu  
35 40 45  
Ile Phe Val Ser Phe Ala Phe Phe Arg Val Val Asn Ser Tyr Cys Pro  
50 55 60  
Leu Gln Phe Val Gln Phe Leu Arg Cys Leu Leu Leu Lys Arg Met  
65 70 75 80  
Leu Gly Glu Phe Ile Phe His Lys Glu Met Glu His Tyr Leu Lys  
85 90 95

<210> 43  
<211> 114  
<212> PRT  
<213> Homo Sapiens

<400> 43  
Ser Lys Leu Leu Ser Gly Thr Ala Asp Gly Ala Asp Leu Arg Thr  
1 5 10 15  
Val Asp Pro Glu Thr Gln Ala Arg Leu Glu Ala Leu Leu Glu Ala Ala  
20 25 30  
Gly Ile Gly Lys Leu Ser Thr Ala Asp Gly Lys Ala Phe Ala Asp Pro  
35 40 45  
Glu Val Leu Arg Arg Leu Thr Ser Ser Val Ser Cys Ala Leu Asp Glu  
50 55 60  
Ala Ala Ala Leu Thr Arg Met Arg Ala Glu Ser Thr Ala Asn Ala Gly  
65 70 75 80  
Gln Ser Asp Asn Arg Ser Leu Ala Glu Ala Cys Ser Gly Asp Val Ala  
85 90 95  
Val Arg Lys Leu Leu Ile Glu Gly Arg Ser Val Phe Glu Leu Pro Glu  
100 105 110  
Glu Gly

<210> 44  
<211> 132  
<212> PRT  
<213> Homo Sapiens

<400> 44  
Gly Glu Lys Glu Gln Asp Lys Pro Pro Asn Leu Val Leu Lys Asp Lys  
1 5 10 15  
Val Lys Pro Lys Gln Asp Thr Lys Tyr Asp Leu Ile Leu Asp Glu Gln  
20 25 30

Ala Glu Asp Ser Lys Ser Ser His Ser His Thr Ser Lys His Lys Lys  
 35 40 45  
 Lys Thr His His Cys Ser Glu Lys Glu Asp Glu Asp Tyr Met Pro  
 50 55 60  
 Ile Lys Asn Thr Asn Gln Asp Ile Tyr Arg Glu Met Gly Phe Gly His  
 65 70 75 80  
 Tyr Glu Glu Glu Glu Ser Cys Trp Glu Lys Gln Lys Ser Glu Lys Arg  
 85 90 95  
 Asp Arg Thr Gln Asn Arg Ser Arg Ser Arg Ser Arg Glu Arg Asp Gly  
 100 105 110  
 His Tyr Ser Asn Ser His Lys Ser Lys Tyr Gln Thr Asp Leu Tyr Glu  
 115 120 125  
 Arg Glu Arg Ser  
 130

<210> 45  
 <211> 214  
 <212> PRT  
 <213> Homo Sapiens

<400> 45  
 Lys Thr Gln Glu Lys Pro Pro Lys Glu Leu Val Asn Glu Trp Ser Leu  
 1 5 10 15  
 Lys Ile Arg Lys Glu Met Arg Val Val Asp Arg Gln Ile Arg Asp Ile  
 20 25 30  
 Gln Arg Glu Glu Lys Val Lys Arg Ser Val Lys Asp Ala Ala Lys  
 35 40 45  
 Lys Gly Gln Lys Asp Val Cys Ile Val Leu Ala Lys Glu Met Ile Arg  
 50 55 60  
 Ser Arg Lys Ala Val Ser Lys Leu Ala Ser Lys Ala His Met Asn Ser  
 65 70 75 80  
 Val Leu Met Gly Met Lys Asn Gln Leu Ala Val Leu Arg Val Ala Gly  
 85 90 95  
 Ser Leu Gln Lys Ser Thr Glu Val Met Lys Ala Met Gln Ser Leu Val  
 100 105 110  
 Lys Ile Pro Glu Ile Gln Ala Thr Met Arg Glu Leu Ser Lys Glu Met  
 115 120 125  
 Met Lys Ala Gly Ile Ile Glu Glu Met Leu Glu Asp Thr Phe Glu Ser  
 130 135 140  
 Met Asp Asp Gln Glu Glu Met Glu Glu Glu Ala Glu Met Glu Ile Asp  
 145 150 155 160  
 Arg Ile Leu Phe Glu Ile Thr Ala Gly Ala Leu Gly Lys Ala Pro Ser  
 165 170 175  
 Lys Val Thr Asp Ala Leu Pro Glu Pro Glu Pro Pro Gly Ala Met Ala  
 180 185 190  
 Ala Ser Glu Asp Glu Glu Glu Glu Glu Leu Glu Ala Met Gln Ser  
 195 200 205  
 Arg Leu Ala Thr Arg Ser  
 210

<210> 46  
 <211> 248  
 <212> PRT  
 <213> Homo Sapiens

&lt;400&gt; 46

Gly Ser Arg Glu Glu Thr Leu Ala Phe Val Pro Leu Leu Arg Leu Leu  
 1 5 10 15  
 Glu Ala Thr Leu Ser Pro Gly Arg Ala Phe Cys Ser Pro Ile Ser Ser  
 20 25 30  
 Lys Ile Gln Pro Ala Gln Val Ala Gly His Glu Leu Cys Ser Gly Ser  
 35 40 45  
 Trp Asn Leu Thr Leu Val Ala Ser Gly Pro Val Ser Met Ala Ala Glu  
 50 55 60  
 His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp Phe Leu Glu Ala  
 65 70 75 80  
 Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser Ser Lys Pro Thr Gly  
 85 90 95  
 Ser Ser Gly Gly Pro Arg Met Ala Ser Phe Pro Lys Thr Lys Phe Asn  
 100 105 110  
 Glu Tyr Lys Asp Val Leu Pro Cys Met Thr Ser Ser Arg Gly Gly Lys  
 115 120 125  
 Ile Lys Ala Thr Asp Phe Met Val Ala Met Arg Cys Leu Gly Ala Ser  
 130 135 140  
 Pro Thr Pro Gly Glu Val Gln Arg His Leu Gln Thr His Gly Ile Asp  
 145 150 155 160  
 Gly Asn Gly Glu Leu Asp Phe Ser Thr Phe Leu Thr Ile Met His Met  
 165 170 175  
 Gln Ile Lys Gln Glu Asp Pro Lys Lys Glu Ile Leu Leu Ala Met Leu  
 180 185 190  
 Met Val Asp Lys Glu Lys Lys Gly Tyr Val Met Ala Ser Asp Leu Arg  
 195 200 205  
 Ser Lys Leu Thr Ser Gly Glu Lys Leu Thr His Lys Glu Val Asp Asp  
 210 215 220  
 Leu Phe Arg Glu Ala Asp Ile Glu Pro Asn Gly Lys Val Lys Tyr Asp  
 225 230 235 240  
 Glu Phe Ile His Lys Ile Thr Leu  
 245

&lt;210&gt; 47

&lt;211&gt; 177

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 47

Leu Cys Cys Met His Tyr Cys Cys Lys Ser Cys Trp Asn Glu Tyr Leu  
 1 5 10 15  
 Thr Thr Arg Ile Glu Gln Asn Leu Val Leu Asn Cys Thr Cys Pro Ile  
 20 25 30  
 Ala Asp Cys Pro Ala Gln Pro Thr Gly Ala Phe Ile Arg Ala Ile Val  
 35 40 45  
 Ser Ser Pro Glu Val Ile Ser Lys Tyr Lys Ala Leu Leu Arg Gly Tyr  
 50 55 60  
 Val Glu Ser Cys Ser Asn Leu Thr Trp Cys Thr Asn Pro Gln Gly Cys  
 65 70 75 80  
 Asp Arg Ile Leu Cys Arg Gln Gly Leu Gly Cys Gly Thr Thr Cys Ser  
 85 90 95  
 Lys Cys Gly Trp Ala Ser Cys Phe Asn Cys Ser Phe Pro Glu Ala His  
 100 105 110  
 Tyr Pro Ala Ser Cys Gly His Met Ser Gln Trp Val Asp Asp Gly Gly

```

      115      120      125
Tyr Tyr Asp Gly Met Ser Val Glu Ala Lys His Leu Ala Lys Leu Ile
      130      135      140
Ser Lys Arg Cys Pro Ser Cys Gln Ala Pro Ile Glu Asn Glu Gly Cys
145      150      155      160
Leu His Met Thr Cys Ala Lys Cys Asn His Gly Phe Cys Trp Arg Cys
      165      170      175
Leu

```

<210> 48  
 <211> 102  
 <212> PRT  
 <213> Homo Sapiens

```

      <400> 48
Glu Lys Gly Leu His Ile Asp Gln Leu Val Cys Leu Val Leu Glu Ala
 1      5      10      15
Gln Lys Gly Pro Asn Pro Pro Gly Thr Leu Gly His Thr Val Ala Gly
      20      25      30
Gly Val Ala Cys Thr Thr Thr Val Leu Ser Cys Leu His Leu Leu Ser
      35      40      45
Gln Gly Tyr Lys Arg Asp Arg Pro Gln Ile Leu Met Tyr Ala Ala Pro
      50      55      60
Pro Met Gly Pro Cys Arg Gly Ala His Phe Cys Gly Ser Ser Gln Thr
      65      70      75      80
Ser Pro Pro Lys Pro Val Ala Thr Leu Ser Leu Leu Pro Cys Pro Leu
      85      90      95
Pro Pro Leu Lys Asn Gly
      100

```

<210> 49  
 <211> 179  
 <212> PRT  
 <213> Homo Sapiens

```

      <400> 49
His Lys Pro Cys Asn Pro Arg Glu Lys Glu Arg Ile Gln Asn Ala Gly
 1      5      10      15
Gly Ser Val Met Ile Gln Arg Val Asn Gly Ser Leu Ala Val Ser Arg
      20      25      30
Ala Leu Gly Asp Tyr Asp Tyr Lys Cys Val Asp Gly Lys Gly Pro Thr
      35      40      45
Glu Gln Leu Val Ser Pro Glu Pro Glu Val Tyr Glu Ile Leu Arg Ala
      50      55      60
Glu Glu Asp Glu Phe Ile Ile Leu Ala Cys Asp Gly Ile Trp Asp Val
      65      70      75      80
Met Ser Asn Glu Glu Leu Cys Glu Tyr Val Lys Ser Arg Leu Glu Val
      85      90      95
Ser Asp Asp Leu Glu Asn Val Cys Asn Trp Val Val Asp Thr Cys Leu
      100      105      110
His Lys Gly Ser Arg Asp Asn Met Ser Ile Val Leu Val Cys Phe Ser
      115      120      125
Asn Ala Pro Lys Val Ser Asp Glu Ala Val Lys Lys Asp Ser Glu Leu
      130      135      140

```



Asp Lys His Leu Glu Ser Ile Met Glu Asn Leu Ala Lys Glu Cys Leu  
 145 150 155 160  
 Ile Leu Pro Met Ser Cys Ala Ser Cys Leu Gln Lys Ile Ser Gln Ile  
 165 170 175  
 Cys Leu Leu

<210> 50  
 <211> 163  
 <212> PRT  
 <213> Homo Sapiens

<400> 50  
 Asp Leu Pro Thr Leu Glu Asp His Gln Lys Gln Ser Gln Gln Leu Lys  
 1 5 10 15  
 Asp Ser Glu Leu Lys Ser Thr Glu Leu Gln Glu Lys Val Thr Glu Leu  
 20 25 30  
 Glu Ser Leu Leu Glu Glu Thr Gln Ala Ile Cys Arg Glu Lys Glu Ile  
 35 40 45  
 Gln Leu Glu Ser Leu Arg Gln Arg Glu Ala Glu Phe Ser Ser Ala Gly  
 50 55 60  
 His Ser Leu Gln Asp Lys Gln Ser Val Glu Glu Thr Ser Gly Glu Gly  
 65 70 75 80  
 Pro Glu Val Glu Met Glu Ser Trp Gln Lys Arg Tyr Asp Ser Leu Gln  
 85 90 95  
 Lys Ile Val Glu Lys Gln Gln Gln Lys Met Asp Gln Leu Arg Ser Gln  
 100 105 110  
 Val Gln Ser Leu Glu Gln Glu Val Ala Glu Glu Gly Thr Ser Gln Ala  
 115 120 125  
 Leu Arg Glu Glu Ala Gln Arg Arg Asp Ser Ala Leu Gln Gln Leu Arg  
 130 135 140  
 Thr Ala Val Lys Leu Ser Val Asn Gln Asp Leu Ile Glu Lys Asn Leu  
 145 150 155 160  
 Thr Leu Gln

<210> 51  
 <211> 164  
 <212> PRT  
 <213> Homo Sapiens

<400> 51  
 Phe Gly Asp Ser Val Asp Cys Ser Asp Cys Trp Leu Pro Val Val Lys  
 1 5 10 15  
 Phe Ile Glu Glu Gln Phe Glu Gln Tyr Leu Arg Asp Glu Ser Gly Leu  
 20 25 30  
 Asn Arg Lys Asn Ile Gln Asp Ser Arg Val His Cys Cys Leu Tyr Phe  
 35 40 45  
 Ile Ser Pro Phe Gly Arg Gly Leu Arg Pro Leu Ala Phe Leu Arg Ala  
 50 55 60  
 Val His Lys Val Asn Ile Ile Pro Val Ile Gly Lys Ala Asp Ala Leu  
 65 70 75 80  
 Met Pro Gln Glu Thr Gln Ala Leu Lys Gln Lys Ile Arg Asp Gln Leu  
 85 90 95  
 Lys Glu Glu Glu Ile His Ile Tyr Gln Phe Pro Glu Cys Asp Ser Asp

```

      100      105      110
Glu Asp Glu Asp Phe Lys Arg Gln Asp Ala Met Lys Glu Ser Ile Pro
      115      120      125
Phe Ala Val Val Gly Ser Cys Gln Val Val Arg Asp Gly Gly Asn Arg
      130      135      140
Pro Val Arg Gly Arg Arg Tyr Ser Trp Gly Asn Val Glu Val Asn His
      145      150      155      160
Ile Ala Ile Ser

```

```

<210> 52
<211> 600
<212> PRT
<213> Homo Sapiens

```

```

      <400> 52
Met Cys Pro Arg Gln Val Asp Arg Ala Lys Glu Lys Gly Ile Gly Thr
  1              5              10              15
Pro Gln Pro Asp Val Ala Lys Asp Ser Trp Ala Glu Leu Glu Asn Ser
      20              25              30
Ser Lys Glu Asn Glu Val Ile Glu Val Lys Ser Met Gly Glu Ser Gln
      35              40              45
Ser Lys Lys Leu Gln Gly Gly Tyr Glu Cys Lys Tyr Cys Pro Tyr Ser
      50              55              60
Thr Gln Asn Leu Asn Glu Phe Thr Glu His Val Asp Met Gln His Pro
      65              70              75              80
Asn Val Ile Leu Asn Pro Leu Tyr Val Cys Ala Glu Cys Asn Phe Thr
      85              90              95
Thr Lys Lys Tyr Asp Ser Leu Ser Asp His Asn Ser Lys Phe His Pro
      100              105              110
Gly Glu Ala Asn Phe Lys Leu Lys Leu Ile Lys Arg Asn Asn Gln Thr
      115              120              125
Val Leu Glu Gln Ser Ile Glu Thr Thr Asn His Val Val Ser Ile Thr
      130              135              140
Thr Ser Gly Pro Gly Thr Gly Asp Ser Asp Ser Gly Ile Ser Val Ser
      145              150              155              160
Lys Thr Pro Ile Met Lys Pro Gly Lys Pro Lys Ala Asp Ala Lys Lys
      165              170              175
Val Pro Lys Lys Pro Glu Glu Ile Thr Pro Glu Asn His Val Glu Gly
      180              185              190
Thr Ala Arg Leu Val Thr Asp Thr Ala Glu Ile Leu Ser Arg Leu Gly
      195              200              205
Gly Val Glu Leu Leu Gln Asp Thr Leu Gly His Val Met Pro Ser Val
      210              215              220
Gln Leu Pro Pro Asn Ile Asn Leu Val Pro Lys Val Pro Val Pro Leu
      225              230              235              240
Asn Thr Thr Lys Tyr Asn Ser Ala Leu Asp Thr Asn Ala Thr Met Ile
      245              250              255
Asn Ser Phe Asn Lys Phe Pro Tyr Pro Thr Gln Ala Glu Leu Ser Trp
      260              265              270
Leu Thr Ala Ala Ser Lys His Pro Glu Glu His Ile Arg Ile Trp Phe
      275              280              285
Ala Thr Gln Arg Leu Lys His Gly Ile Ser Trp Ser Pro Glu Glu Val
      290              295              300
Glu Glu Ala Arg Lys Lys Met Phe Asn Gly Thr Ile Gln Ser Val Pro

```

305 310 315 320  
 Pro-Thr Ile Thr Val Leu Pro Ala Gln Leu Ala Pro Thr Lys Met Thr  
 325 330 335  
 Gln Pro Ile Leu Gln Thr Ala Leu Pro Cys Gln Ile Leu Gly Gln Thr  
 340 345 350  
 Ser Leu Val Leu Thr Gln Val Thr Ser Gly Ser Thr Thr Val Ser Cys  
 355 360 365  
 Ser Pro Ile Thr Leu Ala Val Ala Gly Val Thr Asn His Gly Gln Lys  
 370 375 380  
 Arg Pro Leu Val Thr Pro Gln Ala Ala Pro Glu Pro Lys Arg Pro His  
 385 390 395 400  
 Ile Ala Gln Val Pro Glu Pro Pro Pro Lys Val Ala Asn Pro Pro Leu  
 405 410 415  
 Thr Pro Ala Ser Asp Arg Lys Lys Thr Lys Glu Gln Ile Ala His Leu  
 420 425 430  
 Lys Ala Ser Phe Leu Gln Ser Gln Phe Pro Asp Asp Ala Glu Val Tyr  
 435 440 445  
 Arg Leu Ile Glu Val Thr Gly Leu Ala Arg Ser Glu Ile Lys Lys Trp  
 450 455 460  
 Phe Ser Asp His Arg Tyr Arg Cys Gln Arg Gly Ile Val His Ile Thr  
 465 470 475 480  
 Ser Glu Ser Leu Ala Lys Asp Gln Leu Ala Ile Ala Ala Ser Arg His  
 485 490 495  
 Gly Arg Thr Tyr His Ala Tyr Pro Asp Phe Ala Pro Gln Lys Phe Lys  
 500 505 510  
 Glu Lys Thr Gln Gly Gln Val Lys Ile Leu Glu Asp Ser Phe Leu Lys  
 515 520 525  
 Ser Ser Phe Pro Thr Gln Ala Glu Leu Asp Arg Leu Arg Val Glu Thr  
 530 535 540  
 Lys Leu Ser Arg Arg Glu Ile Asp Ser Trp Phe Ser Glu Arg Arg Lys  
 545 550 555 560  
 Leu Arg Asp Ser Met Glu Gln Ala Val Leu Asp Ser Met Gly Ser Gly  
 565 570 575  
 Gln Lys Arg Pro Arg Cys Gly Lys Pro Pro Met Val Leu Cys Leu Asp  
 580 585 590  
 Ser Asn Ser Ser Pro Val Pro Ser  
 595 600

<210> 53  
 <211> 163  
 <212> PRT  
 <213> Homo Sapiens

<400> 53  
 Arg Lys Ser Trp Glu His Lys Glu Glu Ile Ser Glu Ala Glu Pro Gly  
 1 5 10 15  
 Gly Gly Ser Leu Gly Asp Gly Arg Pro Pro Glu Glu Ser Ala His Glu  
 20 25 30  
 Met Met Glu Glu Glu Glu Ile Pro Lys Pro Lys Ser Val Val Ala  
 35 40 45  
 Pro Pro Gly Ala Pro Lys Lys Glu His Val Asn His Val Ala Gly Lys  
 50 55 60  
 Ser Thr Ile Gly Gly Gln Ile Met Tyr Leu Thr Gly Met Val Asp Lys  
 65 70 75 80  
 Arg Thr Leu Glu Lys Tyr Glu Arg Glu Ala Lys Glu Lys Asn Arg Glu

```

      85              90              95
Thr Trp Tyr Leu Ser Trp Ala Leu Asp Thr Asn Gln Glu Glu Arg Asp
      100          105          110
Lys Gly Lys Thr Val Glu Val Gly Arg Ala Tyr Phe Glu Thr Glu Lys
      115          120          125
Lys His Phe Thr Ile Leu Asp Met Asn Pro Arg Thr Leu Ser Ser Lys
      130          135          140
Pro Lys Ala Gln Asn Leu Lys Leu Lys Val Pro Asn Ser Lys Val Arg
145          150          155          160
Arg Cys Phe

```

<210> 54  
 <211> 155  
 <212> PRT  
 <213> Homo Sapiens

```

    <400> 54
Glu Arg Trp Pro Glu Glu Gly Thr Ala Asp Leu Ala Gln Ser Gly Leu
 1              5              10              15
Glu Gly Gly Thr Thr Arg Ala Ser Val Ser Trp Cys Cys Leu Glu Gly
      20          25          30
Ser Trp Leu Leu Ser Gly Tyr Leu Thr Phe Leu Lys Thr Cys Ser His
      35          40          45
Thr Ala Ser Leu Ala Val Ser Ser Ser Ser Cys Arg Ile Arg His Glu
      50          55          60
Leu Val Pro Asn Ser Ala Arg Gly Lys His Tyr Ser Gln Arg Trp Ala
65          70          75          80
Gln Glu Asp Leu Leu Glu Glu Gln Lys Asp Gly Ala Arg Ala Ala Ala
      85          90          95
Val Ala Asp Lys Lys Lys Gly Leu Met Gly Pro Leu Thr Glu Leu Asp
      100          105          110
Thr Lys Asp Val Asp Ala Leu Leu Lys Lys Ser Glu Ala Gln His Glu
      115          120          125
Gln Pro Glu Asp Gly Cys Pro Phe Gly Ala Leu Thr Gln Arg Leu Leu
      130          135          140
Gln Ala Leu Val Glu Glu Asn Ile Ile Phe Ser
145          150          155

```

<210> 55  
 <211> 112  
 <212> PRT  
 <213> Homo Sapiens

```

    <400> 55
Ser Glu Arg Ala Leu Ala Pro Arg Thr Tyr Arg Met Glu Thr Ala Arg
 1              5              10              15
Ser Ala Pro Tyr Met Arg Ser Met Met Gln Ser Leu Ser Gln Asn Pro
      20          25          30
Asp Leu Ala Ala Gln Met Met Leu Asn Ser Pro Leu Phe Thr Ala Asn
      35          40          45
Pro Gln Leu Gln Glu Gln Met Arg Pro Gln Leu Pro Ala Phe Leu Gln
      50          55          60
Gln Met Gln Asn Pro Asp Thr Leu Ser Ala Met Ser Asn Pro Arg Ala
65          70          75          80

```

Met Gln Ala Leu Met Gln Ile Gln Gln Gly Leu Gln Thr Leu Ala Thr  
                     85                    90                    95  
 Glu Ala Pro Gly Leu Ile Pro Ser Phe Thr Pro Gly Val Gly Val Gly  
                     100                    105                    110

<210> 56  
 <211> 151  
 <212> PRT  
 <213> Homo Sapiens

<400> 56  
 Lys Phe Gly Met Pro Ile Asp Cys Gly Leu Pro Pro His Ile Asp Phe  
   1                    5                    10                    15  
 Gly Asp Cys Thr Lys Leu Lys Asp Asp Gln Gly Tyr Phe Glu Gln Glu  
                     20                    25                    30  
 Asp Asp Met Met Glu Val Pro Tyr Val Thr Pro His Pro Pro Tyr His  
                     35                    40                    45  
 Leu Gly Ala Val Ala Lys Thr Trp Glu Asn Thr Lys Glu Ser Pro Ala  
                     50                    55                    60  
 Thr His Ser Ser Asn Phe Leu Tyr Gly Thr Met Val Ser Tyr Thr Cys  
   65                    70                    75                    80  
 Asn Pro Gly Tyr Glu Leu Leu Gly Asn Pro Val Leu Ile Cys Gln Glu  
                     85                    90                    95  
 Asp Gly Thr Trp Asn Gly Ser Ala Pro Ser Cys Ile Ser Ile Glu Cys  
                     100                    105                    110  
 Asp Leu Pro Thr Ala Pro Glu Asn Gly Phe Leu Arg Phe Thr Glu Thr  
                     115                    120                    125  
 Ser Met Gly Ser Ala Val Gln Tyr Ser Cys Lys Pro Gly His Ile Leu  
                     130                    135                    140  
 Ala Gly Ser Asp Leu Arg Leu  
   145                    150

<210> 57  
 <211> 220  
 <212> PRT  
 <213> Homo Sapiens

<400> 57  
 Ala Ala Phe Val Ser Glu Val Thr Ser Phe Pro Val Val Gln Leu His  
   1                    5                    10                    15  
 Met Asn Arg Thr Ala Met Arg Ala Ser Gln Lys Asp Phe Glu Asn Ser  
                     20                    25                    30  
 Ile Asn Gln Val Lys Leu Leu Lys Lys Asp Pro Gly Asn Glu Val Lys  
                     35                    40                    45  
 Leu Lys Leu Tyr Ala Leu Tyr Lys Lys Gln Ala Thr Glu Gly Pro Cys Asn  
                     50                    55                    60  
 Met Pro Lys Pro Gly Val Phe Asp Leu Ile Asn Lys Ala Lys Trp Asp  
   65                    70                    75                    80  
 Ala Trp Asn Ala Leu Gly Ser Leu Pro Lys Glu Ala Ala Arg Gln Asn  
                     85                    90                    95  
 Tyr Val Asp Leu Val Ser Ser Leu Ser Pro Ser Leu Glu Ser Ser Ser  
                     100                    105                    110  
 Gln Val Glu Pro Gly Thr Asp Arg Lys Ser Thr Gly Phe Glu Thr Leu  
                     115                    120                    125  
 Val Val Thr Ser Glu Asp Gly Ile Thr Lys Ile Met Phe Asn Arg Pro

```

      130              135              140
Lys Lys Lys Asn Ala Ile Asn Thr Glu Met Tyr His Glu Ile Met Arg
145              150              155              160
Ala Leu Lys Ala Ala Ser Lys Asp Asp Ser Ile Ile Thr Val Leu Thr
      165              170              175
Gly Asn Gly Asp Tyr Tyr Ser Ser Gly Asn Asp Leu Thr Asn Phe Thr
      180              185              190
Asp Ile Pro Pro Gly Gly Val Glu Lys Ala Lys Asn Asn Ala Val Leu
      195              200              205
Leu Lys Gly Ile Cys Gly Leu Phe Tyr Arg Ile Ser
      210              215              220

```

```

<210> 58
<211> 101
<212> PRT
<213> Homo Sapiens

```

```

      <400> 58
Trp Pro Asp Leu Val His Thr Trp Ser Ser Glu Glu Ala Met Gly Ser
 1              5              10              15
Cys Cys Ser Cys Pro Asp Lys Asp Thr Val Pro Asp Asn His Arg Asn
      20              25              30
Lys Phe Lys Val Ile Asn Val Asp Asp Asp Gly Asn Glu Leu Gly Ser
      35              40              45
Gly Ile Met Glu Leu Thr Asp Thr Glu Leu Ile Leu Tyr Thr Arg Lys
      50              55              60
Arg Asp Ser Val Lys Trp His Tyr Leu Cys Leu Arg Arg Tyr Gly Tyr
65              70              75              80
Asp Ser Asn Leu Phe Ser Phe Glu Ser Gly Pro Arg Cys Gln Thr Gly
      85              90              95
Thr Arg Asn Leu Cys
      100

```

```

<210> 59
<211> 43
<212> PRT
<213> Homo Sapiens

```

```

      <400> 59
Ala His Gly Pro Gly Val Glu Pro Thr Ser Arg His Gln Lys Asn Asn
 1              5              10              15
Leu Ser Ser Ser His Thr Val Arg Leu Glu Thr Arg Gly Gln Thr Glu
      20              25              30
Asn Gln Glu Cys Leu Leu Cys Pro His Glu Glu
      35              40

```

```

<210> 60
<211> 210
<212> PRT
<213> Homo Sapiens

```

```

      <400> 60
Leu Asn Gln Trp Thr Tyr Gln Ala Met Val His Glu Leu Leu Gly Ile
 1              5              10              15
Asn Asn Asn Arg Ile Asp Leu Ser Arg Val Pro Gly Ile Ser Lys Asp

```

20 25 30  
 Leu Arg Glu Val Val Leu Ser Ala Glu Asn Asp Glu Phe Tyr Ala Asn  
 35 40 45  
 Asn Met Tyr Leu Asn Phe Ala Glu Ile Gly Ser Asn Ile Lys Asn Leu  
 50 55 60  
 Met Glu Asp Phe Gln Lys Lys Lys Pro Lys Glu Gln Gln Lys Leu Glu  
 65 70 75 80  
 Ser Ile Ala Asp Met Lys Ala Phe Val Glu Asn Tyr Pro Gln Phe Lys  
 85 90 95  
 Lys Met Ser Gly Thr Val Ser Lys His Val Thr Val Val Gly Glu Leu  
 100 105 110  
 Ser Arg Leu Val Ser Glu Arg Asn Leu Leu Glu Val Ser Glu Val Glu  
 115 120 125  
 Gln Glu Leu Ala Cys Gln Asn Asp His Ser Ser Ala Leu Gln Asn Ile  
 130 135 140  
 Lys Arg Leu Leu Gln Asn Pro Lys Val Thr Glu Phe Asp Ala Ala Arg  
 145 150 155 160  
 Leu Val Met Leu Tyr Ala Leu His Tyr Glu Arg His Ser Ser Asn Ser  
 165 170 175  
 Leu Pro Gly Leu Met Met Leu Arg Asn Lys Gly Val Ser Glu Lys Tyr  
 180 185 190  
 Arg Lys Leu Val Ser Ala Val Val Glu Tyr Gly Gly Lys Thr Ser Gln  
 195 200 205  
 Arg Lys  
 210

<210> 61  
 <211> 40  
 <212> PRT  
 <213> Homo Sapiens

<400> 61  
 Thr Pro Gly Pro Gly Ala Gly Phe Tyr Ala Cys Pro Ala Arg Pro Leu  
 1 5 10 15  
 Val Ser Gly Ile Tyr Ser Phe Arg Trp Val Arg Gly Leu Ala Asp Gln  
 20 25 30  
 Glu Arg Asn Trp Gly Leu Ser Gln  
 35 40

<210> 62  
 <211> 238  
 <212> PRT  
 <213> Homo Sapiens

<400> 62  
 His Glu Ala Arg Leu Lys Arg Ala Ser Ala Pro Thr Phe Asp Asn Asp  
 1 5 10 15  
 Tyr Ser Leu Ser Glu Leu Leu Ser Gln Leu Asp Ser Gly Val Ser Gln  
 20 25 30  
 Ala Val Glu Gly Pro Glu Glu Leu Ser Arg Ser Ser Ser Glu Ser Lys  
 35 40 45  
 Leu Pro Ser Ser Gly Ser Gly Lys Arg Leu Ser Gly Val Ser Ser Val  
 50 55 60  
 Asp Ser Ala Phe Ser Ser Arg Gly Ser Leu Ser Leu Ser Phe Glu Arg  
 65 70 75 80

Glu Pro Ser Thr Ser Asp Leu Gly Thr Thr Asp Val Gln Lys Lys Lys  
                                   85                                  90                                  95  
 Leu Val Asp Ala Ile Val Ser Gly Asp Thr Ser Lys Leu Met Lys Ile  
                                   100                                  105                                  110  
 Leu Gln Pro Gln Asp Val Asp Leu Ala Leu Asp Ser Gly Ala Ser Leu  
                                   115                                  120                                  125  
 Leu His Leu Ala Val Glu Ala Gly Gln Glu Glu Cys Ala Lys Trp Leu  
                                   130                                  135                                  140  
 Leu Leu Asn Asn Ala Asn Pro Asn Leu Ser Asn Arg Arg Gly Ser Thr  
                                   145                                  150                                  155                                  160  
 Pro Leu His Met Ala Val Glu Arg Arg Val Arg Gly Val Val Glu Leu  
                                   165                                  170                                  175  
 Leu Leu Ala Arg Ile Ser Val Asn Ala Lys Asp Glu Asp Gln Trp Thr  
                                   180                                  185                                  190  
 Ala Leu His Phe Ala Asn Gly Gly Val His Thr Ala Ala Val Gly Glu  
                                   195                                  200                                  205  
 Arg Leu Gly Gln Thr Lys Val Asp Phe Glu Gly Arg Thr Pro Met Gln  
                                   210                                  215                                  220  
 Val Gly Leu Pro Thr Thr Gly Lys Asn Ile Leu Arg Ile Leu  
                                   225                                  230                                  235

<210> 63  
 <211> 146  
 <212> PRT  
 <213> Homo Sapiens

<400> 63  
 Arg Leu Gly Ala Ala Met Met Glu Gly Leu Asp Asp Gly Pro Asp Phe  
   1                                  5                                  10                                  15  
 Leu Ser Glu Glu Asp Arg Gly Leu Lys Ala Ile Asn Val Asp Leu Gln  
                                   20                                  25                                  30  
 Ser Asp Ala Ala Leu Gln Val Asp Ile Ser Asp Ala Leu Ser Glu Arg  
                                   35                                  40                                  45  
 Asp Lys Val Lys Phe Thr Val His Thr Lys Ile Pro Pro Ala Pro Pro  
                                   50                                  55                                  60  
 Arg Pro Asp Phe Asp Ala Ser Arg Glu Lys Leu Gln Lys Leu Gly Glu  
                                   65                                  70                                  75                                  80  
 Gly Glu Gly Ser Met Thr Lys Glu Glu Phe Thr Lys Met Lys Gln Glu  
                                   85                                  90                                  95  
 Leu Glu Ala Glu Tyr Leu Ala Ile Phe Lys Lys Thr Val Ala Met His  
                                   100                                  105                                  110  
 Glu Val Phe Leu Cys Arg Val Ala Ala His Pro Ile Leu Arg Arg Asp  
                                   115                                  120                                  125  
 Leu Asn Phe His Val Phe Leu Glu Tyr Asn Gln Asp Leu Ser Val Arg  
                                   130                                  135                                  140  
 Gly Lys  
 145

<210> 64  
 <211> 63  
 <212> PRT  
 <213> Homo Sapiens

<400> 64  
 Glu Arg Gly His Ser Ile Lys Asp Phe Val Ser Phe Ala Arg His Phe



1                      5                      10                      15  
 Ser Pro Asn Pro Arg Ile Val Ser Val Asn Ala Ser Tyr Ser Leu Ser  
                     20                      25                      30  
 Asn Glu Ser Ser Leu Glu Gln Val Tyr Thr Leu Lys Met Ser Phe Ile  
                     35                      40                      45  
 Ala Ser Asn Thr Tyr His Asn Gln Leu Tyr Lys Glu Gly Phe Leu  
                     50                      55                      60

<210> 65  
 <211> 199  
 <212> PRT  
 <213> Homo Sapiens

<400> 65  
 Glu Ala Pro Asp Ser Ala Glu Gly Thr Thr Leu Thr Val Leu Pro Glu  
 1                      5                      10                      15  
 Gly Glu Glu Leu Pro Leu Cys Val Ser Glu Ser Asn Gly Leu Glu Leu  
                     20                      25                      30  
 Pro Pro Ser Ala Ala Ser Asp Glu Pro Leu Gln Glu Pro Leu Glu Ala  
                     35                      40                      45  
 Asp Arg Thr Ser Glu Glu Leu Thr Glu Ala Lys Thr Pro Thr Ser Ser  
                     50                      55                      60  
 Pro Glu Lys Pro Gln Glu Leu Val Thr Ala Glu Val Ala Ala Pro Ser  
 65                      70                      75                      80  
 Thr Ser Ser Ser Ala Thr Ser Ser Pro Glu Gly Pro Ser Pro Ala Arg  
                     85                      90                      95  
 Pro Pro Arg Arg Arg Thr Ser Ala Asp Val Glu Ile Arg Gly Gln Gly  
                     100                      105                      110  
 Thr Gly Arg Pro Gly Gln Pro Pro Gly Pro Lys Val Leu Arg Lys Leu  
                     115                      120                      125  
 Pro Gly Arg Leu Val Thr Val Val Glu Glu Lys Glu Leu Val Arg Arg  
                     130                      135                      140  
 Arg Arg Gln Gln Arg Gly Ala Ala Ser Thr Leu Val Pro Gly Val Ser  
 145                      150                      155                      160  
 Glu Thr Ser Ala Ser Pro Gly Ser Pro Ser Val Arg Ser Met Ser Gly  
                     165                      170                      175  
 Pro Glu Ser Ser Pro Pro Ile Gly Gly Pro Cys Glu Ala Ala Pro Ser  
                     180                      185                      190  
 Ser Ser Leu Pro Thr Pro Pro  
 195

<210> 66  
 <211> 1599  
 <212> DNA  
 <213> Homo Sapiens

<400> 66  
 ttctttgaaa cattattatt cagaacgaag gagaatgata cagatacact ggctgaggtg 60  
 ttttgaggtg cattgaaatg ttccatgctg ttacttaggt taacatgttc ttgaggtacc 120  
 atgccatgga ttaaaaggaa atttggtaag tggcttcac ctaaagcact tactagggaa 180  
 gctatgcgaa attatttaaa agggtaaggg gatcaaatag tacttatcct tcatgcaaaa 240  
 gttgtacaga agtcatatgg caatcaaaaa attttttttt gccctcccc ttgtgtatat 300  
 cttatgggca gtggatggaa gaaaaaaaaa gaacaaatga aatgcgatgg ttgttctgaa 360  
 cacagctctc atccatgtgc atttattggg ataggaaata gtgaccaaga aatgcagcag 420  
 ctaaacttgg aaggaaagaa ctattgcaca gccaaaacat tgtacatatc tgattcagac 480

```

aagcaaaagc acttcatttt ttctgtaaag gtgttctatg gcaacgggtga tgacattggt      540
gtgttctctca gcaagtagat aaaagtcata tccaaacctt ccaaaaagaa gcagtcattg      600
aaaaatgctg acttatgcat tgtctcagga acaaagggtg ctctgtttta tcgactacga      660
tcccagacag ttagtaccag atacttgcac gtagaaggag gtaattttca tgccagttca      720
cagcagtggg gagcatttta cattcaattc ttggatgatg atggatcaga aggagaagaa      780
ttcacagtct gagatgccta cattcattat ggacaaacat gcaaacttgt gtgctcagtt      840
actggcatgg cactcccaag attgataatt atgaaagttg ataagcatac cgcattattg      900
gatgcagatg atcctgtgtc acaactccat aaatgtgcat ttaccttaa ggatacagaa      960
agaatgtatt tgtgcctttc tcaagaaaga ataattcaat ttcaggccac tccatgtcca     1020
agagaaccaa ataaagagat gataaatgat ggcgcttcct ggacaatcat tagcacagat     1080
aaggcagggg atacatttta tgagggaatg ggccttctcc ttgccccagt cactcctgtg     1140
cctgtggtag agagccttca gttgaatggc ggtggggacg tagcaatgct tgaacttaca     1200
ggacagaatt tcaactccaa tttacgagtg tggtttgggg gggtagaagc tgaaactatg     1260
tacaggtgtg gagagagtat gctctgtgtc gtcccagaca tttctgcatt ccgagaaggt     1320
tggagatggg tccggcaacc agtccaggtt ccagtaactt tgggtccgaa tgatggaatc     1380
atttattcca ccagccttac ctttacctac acaccagaac cagggccgcg gccacattgc     1440
agtgcagcag gagcaatcct tctagccaat tcaagccagg tgccccctaa cgaatcaaac     1500
acaaacagcg aggggaagtta cacaacgcc agcacaaatt caaccagtgt cacatcatct     1560
acagccacag tggatccta actaccgtct ttttgctag                               1599

```

&lt;210&gt; 67

&lt;211&gt; 729

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 67

```

Met Gly Lys Lys Tyr Lys Asn Ile Val Leu Leu Lys Gly Leu Glu Val
 1              5              10              15
Ile Asn Asp Tyr His Phe Arg Met Val Lys Ser Leu Leu Ser Asn Asp
      20              25              30
Leu Lys Leu Asn Leu Lys Met Arg Glu Glu Tyr Asp Lys Ile Gln Ile
      35              40              45
Ala Asp Leu Met Glu Glu Lys Phe Arg Gly Asp Ala Gly Leu Gly Lys
      50              55              60
Leu Ile Lys Ile Phe Glu Asp Ile Pro Thr Leu Glu Asp Leu Ala Glu
65              70              75              80
Thr Leu Lys Lys Glu Lys Leu Lys Val Lys Gly Pro Ala Leu Ser Arg
      85              90              95
Lys Arg Lys Lys Glu Val His Ala Thr Ser Pro Ala Pro Ser Thr Ser
      100              105              110
Ser Thr Val Lys Thr Glu Gly Ala Glu Ala Thr Pro Gly Ala Gln Lys
      115              120              125
Arg Lys Lys Ser Thr Lys Glu Lys Ala Gly Pro Lys Gly Ser Lys Val
      130              135              140
Ser Glu Glu Gln Thr Gln Pro Pro Ser Pro Ala Gly Ala Gly Met Ser
145              150              155              160
Thr Ala Met Gly Arg Ser Pro Ser Pro Lys Thr Ser Leu Ser Ala Pro
      165              170              175
Pro Asn Ser Ser Ser Thr Glu Asn Pro Lys Thr Val Ala Lys Cys Gln
      180              185              190
Val Thr Pro Arg Arg Asn Val Leu Gln Lys Arg Pro Val Ile Val Lys
      195              200              205
Val Leu Ser Thr Thr Lys Pro Phe Glu Tyr Glu Thr Pro Glu Met Glu
      210              215              220
Lys Lys Ile Met Phe His Ala Thr Val Ala Thr Gln Thr Gln Phe Phe

```

```

225          230          235          240
His Val Lys Val Leu Asn Thr Ser Leu Lys Glu Lys Phe Asn Gly Lys
          245          250          255
Lys Ile Ile Ile Ile Ser Asp Tyr Leu Glu Tyr Asp Ser Leu Leu Glu
          260          265          270
Val Asn Glu Glu Ser Thr Val Ser Glu Ala Gly Pro Asn Gln Thr Phe
          275          280          285
Glu Val Pro Asn Lys Ile Ile Asn Arg Ala Lys Glu Thr Leu Lys Ile
          290          295          300
Asp Ile Leu His Lys Lys Gln Ala Ser Gly Asn Ile Val Tyr Gly Val Phe
305          310          315          320
Met Leu His Lys Lys Thr Val Asn Gln Lys Thr Thr Ile Tyr Glu Ile
          325          330          335
Gln Asp Asp Arg Gly Lys Met Asp Val Val Gly Thr Gly Gln Cys His
          340          345          350
Asn Ile Pro Cys Glu Glu Gly Asp Lys Leu Gln Leu Phe Cys Phe Arg
          355          360          365
Leu Arg Lys Lys Asn Gln Met Ser Lys Leu Ile Ser Glu Met His Ser
          370          375          380
Phe Ile Gln Ile Lys Lys Lys Thr Asn Pro Arg Asn Asn Asp Pro Lys
385          390          395          400
Ser Met Lys Leu Pro Gln Glu Gln Arg Gln Leu Pro Tyr Pro Ser Glu
          405          410          415
Ala Ser Thr Thr Phe Pro Glu Ser His Leu Arg Thr Pro Gln Met Pro
          420          425          430
Pro Thr Thr Pro Ser Ser Ser Phe Thr Lys Lys Ser Glu Asp Thr
          435          440          445
Ile Ser Lys Met Asn Asp Phe Met Arg Met Gln Ile Leu Lys Glu Gly
          450          455          460
Ser His Phe Pro Gly Pro Phe Met Thr Ser Ile Gly Pro Ala Glu Ser
465          470          475          480
His Pro His Thr Pro Gln Met Pro Pro Ser Thr Pro Ser Ser Ser Phe
          485          490          495
Leu Thr Thr Leu Lys Pro Arg Leu Lys Thr Glu Pro Glu Glu Val Ser
          500          505          510
Ile Glu Asp Ser Ala Gln Ser Asp Leu Lys Glu Val Met Val Leu Asn
          515          520          525
Ala Thr Glu Ser Phe Val Tyr Glu Pro Lys Glu Gln Lys Lys Met Phe
          530          535          540
His Ala Thr Val Ala Thr Glu Asn Glu Val Phe Arg Val Lys Val Phe
545          550          555          560
Asn Ile Asp Leu Lys Glu Lys Phe Thr Pro Lys Lys Ile Ile Ala Ile
          565          570          575
Ala Asn Tyr Val Cys Arg Asn Gly Phe Leu Glu Val Tyr Pro Phe Thr
          580          585          590
Leu Val Ala Asp Val Asn Ala Asp Ala Asn Met Glu Ile Pro Lys Gly
          595          600          605
Leu Ile Arg Ser Ala Ser Val Thr Pro Lys Ile Asn Gln Leu Cys Ser
          610          615          620
Gln Thr Lys Gly Ser Phe Val Asn Gly Val Phe Glu Val His Lys Lys
625          630          635          640
Asn Val Arg Gly Glu Phe Thr Tyr Tyr Glu Ile Gln Asp Asn Thr Gly
          645          650          655
Lys Met Glu Val Val Val His Gly Arg Leu Asn Thr Ile Asn Cys Glu
          660          665          670

```

Glu Gly Asp Lys Leu Lys Leu Thr Ser Phe Glu Leu Ala Pro Lys Ser  
 675 680 685  
 Gly Asn Thr Gly Glu Leu Arg Ser Val Ile His Ser His Ile Lys Val  
 690 695 700  
 Ile Lys Thr Lys Lys Asn Lys Lys Asp Ile Leu Asn Pro Asp Ser Ser  
 705 710 715 720  
 Met Glu Thr Ser Pro Asp Phe Phe Phe  
 725

<210> 68  
 <211> 754  
 <212> PRT  
 <213> Homo Sapiens

<400> 68  
 Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro  
 1 5 10 15  
 Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu  
 20 25 30  
 Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe  
 35 40 45  
 Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro  
 50 55 60  
 Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys  
 65 70 75 80  
 Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln  
 85 90 95  
 Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr  
 100 105 110  
 Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln  
 115 120 125  
 Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile  
 130 135 140  
 Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly  
 145 150 155 160  
 Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His  
 165 170 175  
 Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn  
 180 185 190  
 Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His  
 195 200 205  
 Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln  
 210 215 220  
 Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr  
 225 230 235 240  
 Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro  
 245 250 255  
 Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu  
 260 265 270  
 Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln  
 275 280 285  
 Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys  
 290 295 300  
 His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala  
 305 310 315 320

Tyr	Ala	Trp	Pro	Phe	Tyr	Lys	Pro	Val	Asp	Ala	Ser	Ala	Leu	Gly	Leu
				325					330					335	
His	Asp	Tyr	His	Asp	Ile	Ile	Lys	His	Pro	Met	Asp	Leu	Ser	Thr	Val
			340					345					350		
Lys	Arg	Lys	Met	Glu	Asn	Arg	Asp	Tyr	Arg	Asp	Ala	Gln	Glu	Phe	Ala
		355					360					365			
Ala	Asp	Val	Arg	Leu	Met	Phe	Ser	Asn	Cys	Tyr	Lys	Tyr	Asn	Pro	Pro
	370					375					380				
Asp	His	Asp	Val	Val	Ala	Met	Ala	Arg	Lys	Leu	Gln	Asp	Val	Phe	Glu
385					390					395					400
Phe	Arg	Tyr	Ala	Lys	Met	Pro	Asp	Glu	Pro	Leu	Glu	Pro	Gly	Pro	Leu
				405					410					415	
Pro	Val	Ser	Thr	Ala	Met	Pro	Pro	Gly	Leu	Ala	Lys	Ser	Ser	Ser	Glu
			420					425					430		
Ser	Ser	Ser	Glu	Glu	Ser	Ser	Ser	Glu	Ser	Ser	Ser	Glu	Glu	Glu	Glu
		435					440					445			
Glu	Glu	Asp	Glu	Glu	Asp	Glu	Glu	Glu	Glu	Glu	Ser	Glu	Ser	Ser	Asp
	450					455					460				
Ser	Glu	Glu	Glu	Arg	Ala	His	Arg	Leu	Ala	Glu	Leu	Gln	Glu	Gln	Leu
465					470					475					480
Arg	Ala	Val	His	Glu	Gln	Leu	Ala	Ala	Leu	Ser	Gln	Gly	Pro	Ile	Ser
				485					490					495	
Lys	Pro	Lys	Arg	Lys	Arg	Glu	Lys	Lys	Glu	Lys	Lys	Lys	Lys	Arg	Lys
			500					505					510		
Ala	Glu	Lys	His	Arg	Gly	Arg	Ala	Gly	Ala	Asp	Glu	Asp	Asp	Lys	Gly
		515					520					525			
Pro	Arg	Ala	Pro	Arg	Pro	Pro	Gln	Pro	Lys	Lys	Ser	Lys	Lys	Ala	Ser
		530				535						540			
Gly	Ser	Gly	Gly	Gly	Ser	Ala	Ala	Leu	Gly	Pro	Ser	Gly	Phe	Gly	Pro
545					550					555					560
Ser	Gly	Gly	Ser	Gly	Thr	Lys	Leu	Pro	Lys	Lys	Ala	Thr	Lys	Thr	Ala
				565					570					575	
Pro	Pro	Ala	Leu	Pro	Thr	Gly	Tyr	Asp	Ser	Glu	Glu	Glu	Glu	Glu	Ser
			580					585						590	
Arg	Pro	Met	Ser	Tyr	Asp	Glu	Lys	Arg	Gln	Leu	Ser	Leu	Asp	Ile	Asn
		595					600					605			
Lys	Leu	Pro	Gly	Glu	Lys	Leu	Gly	Arg	Val	Val	His	Ile	Ile	Gln	Ala
	610					615					620				
Arg	Glu	Pro	Ser	Leu	Arg	Asp	Ser	Asn	Pro	Glu	Glu	Ile	Glu	Ile	Asp
625					630					635					640
Phe	Glu	Thr	Leu	Lys	Pro	Ser	Thr	Leu	Arg	Glu	Leu	Glu	Arg	Tyr	Val
			645						650					655	
Leu	Ser	Cys	Leu	Arg	Lys	Lys	Pro	Arg	Lys	Pro	Tyr	Thr	Ile	Lys	Lys
		660						665					670		
Pro	Val	Gly	Lys	Thr	Lys										

<210> 69  
 <211> 210  
 <212> PRT  
 <213> Homo Sapiens

<400> 69  
 Met Asp Asp Glu Glu Glu Thr Tyr Arg Leu Trp Lys Ile Arg Lys Thr  
 1 5 10 15  
 Ile Met Gln Leu Cys His Asp Arg Gly Tyr Leu Val Thr Gln Asp Glu  
 20 25 30  
 Leu Asp Gln Thr Leu Glu Glu Phe Lys Ala Gln Phe Gly Asp Lys Pro  
 35 40 45  
 Ser Glu Gly Arg Pro Arg Arg Thr Asp Leu Thr Val Leu Val Ala His  
 50 55 60  
 Asn Asp Asp Pro Thr Asp Gln Met Phe Val Phe Phe Pro Glu Glu Pro  
 65 70 75 80  
 Lys Val Gly Ile Lys Thr Ile Lys Val Tyr Cys Gln Arg Met Gln Glu  
 85 90 95  
 Glu Asn Ile Thr Arg Ala Leu Ile Val Val Gln Gln Gly Met Thr Pro  
 100 105 110  
 Ser Ala Lys Gln Ser Leu Val Asp Met Ala Pro Lys Tyr Ile Leu Glu  
 115 120 125  
 Gln Phe Leu Gln Gln Glu Leu Ile Asn Ile Thr Glu His Glu Leu  
 130 135 140  
 Val Pro Glu His Val Val Met Thr Lys Glu Glu Val Thr Glu Leu Leu  
 145 150 155 160  
 Ala Arg Tyr Lys Leu Arg Glu Asn Gln Leu Pro Arg Ile Gln Ala Gly  
 165 170 175  
 Asp Pro Val Ala Arg Tyr Phe Gly Ile Lys Arg Gly Gln Val Val Lys  
 180 185 190  
 Ile Ile Arg Pro Ser Glu Thr Ala Gly Arg Tyr Ile Thr Tyr Arg Leu  
 195 200 205  
 Val Gln  
 210

<210> 70  
 <211> 621  
 <212> PRT  
 <213> Homo Sapiens

<400> 70  
 Met Leu Leu Leu Pro Ser Ala Ala Glu Gly Gln Gly Thr Ala Ile Thr  
 1 5 10 15  
 His Ala Leu Thr Ser Ala Ser Ser Val Cys Gln Val Glu Pro Val Gly  
 20 25 30  
 Arg Trp Phe Glu Ala Phe Val Lys Arg Arg Asn Arg Asn Ala Ser Thr  
 35 40 45  
 Ser Phe Gln Glu Leu Glu Asp Lys Lys Glu Leu Ser Glu Glu Ser Glu  
 50 55 60  
 Asp Glu Glu Leu Gln Leu Glu Glu Phe Pro Met Leu Lys Thr Leu Asp  
 65 70 75 80  
 Pro Lys Asp Trp Lys Asn Gln Asp His Tyr Ala Val Leu Gly Leu Gly  
 85 90 95

His Val Arg Tyr Thr Ala Thr Gln Arg Gln Ile Lys Ala Ala His Lys  
 100 105 110  
 Ala Met Val Leu Lys His His Pro Asp Lys Arg Lys Ala Ala Gly Glu  
 115 120 125  
 Pro Ile Lys Glu Gly Asp Asn Asp Tyr Phe Thr Cys Ile Thr Lys Ala  
 130 135 140  
 Tyr Glu Met Leu Ser Asp Pro Val Lys Arg Arg Ala Phe Asn Ser Val  
 145 150 155 160  
 Asp Pro Thr Phe Asp Asn Ser Val Pro Ser Lys Ser Glu Ala Lys Asp  
 165 170 175  
 Asn Phe Phe Gln Val Phe Ser Pro Val Phe Glu Arg Asn Ser Arg Trp  
 180 185 190  
 Ser Asn Lys Lys Asn Val Pro Lys Leu Gly Asp Met Asn Ser Ser Phe  
 195 200 205  
 Glu Asp Val Asp Ala Phe Tyr Ser Phe Trp Tyr Asn Phe Asp Ser Trp  
 210 215 220  
 Arg Glu Phe Ser Tyr Leu Asp Glu Glu Glu Lys Glu Lys Ala Glu Cys  
 225 230 235 240  
 Arg Asp Glu Arg Lys Trp Ile Glu Lys Gln Asn Arg Ala Thr Arg Ala  
 245 250 255  
 Gln Arg Lys Lys Glu Glu Met Asn Arg Ile Arg Thr Leu Val Asp Asn  
 260 265 270  
 Ala Tyr Ser Cys Asp Pro Arg Ile Lys Lys Phe Lys Glu Glu Glu Lys  
 275 280 285  
 Ala Lys Lys Glu Ala Glu Lys Lys Ala Lys Ala Glu Ala Arg Arg Lys  
 290 295 300  
 Glu Gln Glu Ala Lys Glu Lys Gln Arg Gln Ala Glu Leu Glu Ala Val  
 305 310 315 320  
 Arg Leu Ala Lys Glu Lys Glu Glu Glu Glu Val Arg Gln Gln Ala Leu  
 325 330 335  
 Leu Ala Lys Lys Glu Lys Asp Ile Gln Lys Lys Ala Ile Lys Lys Glu  
 340 345 350  
 Arg Gln Lys Leu Arg Asn Ser Cys Lys Ser Trp Asn His Phe Ser Asp  
 355 360 365  
 Asn Glu Ala Asp Arg Val Lys Met Met Glu Glu Val Glu Lys Leu Cys  
 370 375 380  
 Asp Arg Leu Glu Leu Ala Ser Leu Gln Gly Leu Asn Glu Ile Leu Ala  
 385 390 395 400  
 Ser Ser Thr Arg Glu Val Gly Lys Ala Ala Leu Glu Lys Gln Ile Glu  
 405 410 415  
 Glu Val Asn Glu Gln Met Arg Arg Glu Lys Glu Glu Ala Asp Ala Arg  
 420 425 430  
 Met Arg Gln Ala Ser Lys Asn Ala Glu Lys Ser Thr Gly Gly Ser Gly  
 435 440 445  
 Ser Gly Ser Lys Asn Trp Ser Glu Asp Asp Leu Gln Leu Leu Ile Lys  
 450 455 460  
 Ala Val Asn Leu Phe Pro Ala Gly Thr Asn Ser Arg Trp Glu Val Ile  
 465 470 475 480  
 Ala Asn Tyr Met Asn Ile His Ser Ser Ser Gly Val Lys Arg Thr Ala  
 485 490 495  
 Lys Asp Val Ile Ser Lys Ala Lys Ser Leu Gln Lys Leu Asp Pro His  
 500 505 510  
 Gln Lys Asp Asp Ile Asn Lys Lys Ala Phe Asp Lys Phe Lys Lys Glu  
 515 520 525  
 His Gly Val Ala Ser Gln Ala Asp Ser Ala Ala Pro Ser Glu Arg Phe

530                      535                      540  
 Glu Gly Pro Cys Ile Asp Ser Thr Pro Trp Thr Thr Glu Glu Gln Lys  
 545                      550                      555                      560  
 Leu Leu Glu Gln Ala Leu Lys Thr Tyr Pro Val Asn Thr Pro Glu Arg  
                     565                      570                      575  
 Trp Glu Lys Ile Ala Glu Ala Val Pro Gly Arg Thr Lys Lys Asp Cys  
                     580                      585                      590  
 Met Arg Arg Tyr Lys Glu Leu Val Glu Met Val Lys Ala Lys Lys Ala  
                     595                      600                      605  
 Ala Gln Glu Gln Val Leu Asn Ala Ser Arg Ala Arg Lys  
                     610                      615                      620

<210> 71  
 <211> 267  
 <212> PRT  
 <213> Homo Sapiens

<400> 71  
 Met Ala Ser Leu Leu Lys Val Asp Gln Glu Val Lys Leu Lys Val Asp  
 1                      5                      10                      15  
 Ser Phe Arg Glu Arg Ile Thr Ser Lys Ala Glu Asp Leu Val Ala Asn  
                     20                      25                      30  
 Phe Phe Pro Lys Lys Leu Leu Glu Leu Asp Ser Phe Leu Lys Glu Pro  
                     35                      40                      45  
 Ile Leu Asn Ile His Asp Leu Thr Gln Ile His Ser Asp Met Asn Leu  
                     50                      55                      60  
 Pro Val Pro Asp Pro Ile Leu Leu Thr Asn Ser His Asp Gly Leu Asp  
 65                      70                      75                      80  
 Gly Pro Thr Tyr Lys Lys Arg Arg Leu Asp Glu Cys Glu Glu Ala Phe  
                     85                      90                      95  
 Gln Gly Thr Lys Val Phe Val Met Pro Asn Gly Met Leu Lys Ser Asn  
                     100                      105                      110  
 Gln Gln Leu Val Asp Ile Ile Glu Lys Val Lys Pro Glu Ile Arg Leu  
                     115                      120                      125  
 Leu Ile Glu Lys Cys Asn Thr Pro Ser Gly Lys Gly Pro His Ile Cys  
                     130                      135                      140  
 Phe Asp Leu Gln Val Lys Met Trp Val Gln Leu Leu Ile Pro Arg Ile  
 145                      150                      155                      160  
 Glu Asp Gly Asn Asn Phe Gly Val Ser Ile Gln Glu Glu Thr Val Ala  
                     165                      170                      175  
 Glu Leu Arg Thr Val Glu Ser Glu Ala Ala Ser Tyr Leu Asp Gln Ile  
                     180                      185                      190  
 Ser Arg Tyr Tyr Ile Thr Arg Ala Lys Leu Val Ser Lys Ile Ala Lys  
                     195                      200                      205  
 Tyr Pro His Val Glu Asp Tyr Arg Arg Thr Val Thr Glu Ile Asp Glu  
                     210                      215                      220  
 Lys Glu Tyr Ile Ser Leu Arg Leu Ile Ile Ser Glu Leu Arg Asn Gln  
 225                      230                      235                      240  
 Tyr Val Thr Leu His Asp Met Ile Leu Lys Asn Ile Glu Lys Ile Lys  
                     245                      250                      255  
 Arg Pro Arg Ser Ser Asn Ala Glu Thr Leu Tyr  
                     260                      265

<210> 72  
 <211> 1752



&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 72

Arg Glu Lys Arg Arg Arg Lys Ser Val Glu Asp Arg Phe Asp Gln Gln  
 1 5 10 15  
 Lys Asn Asp Tyr Asp Gln Leu Gln Lys Ala Arg Gln Cys Glu Lys Glu  
 20 25 30  
 Asn Leu Gly Trp Gln Lys Leu Glu Ser Glu Lys Ala Ile Lys Glu Lys  
 35 40 45  
 Glu Tyr Glu Ile Glu Arg Leu Arg Val Leu Leu Gln Glu Glu Gly Thr  
 50 55 60  
 Arg Lys Arg Glu Tyr Glu Asn Glu Leu Ala Lys Val Arg Asn His Tyr  
 65 70 75 80  
 Asn Glu Glu Met Ser Asn Leu Arg Asn Lys Tyr Glu Thr Glu Ile Asn  
 85 90 95  
 Ile Thr Lys Thr Thr Ile Lys Glu Ile Ser Met Gln Lys Glu Asp Asp  
 100 105 110  
 Ser Lys Asn Leu Arg Asn Gln Leu Asp Arg Leu Ser Arg Glu Asn Arg  
 115 120 125  
 Asp Leu Lys Asp Glu Ile Val Arg Leu Asn Asp Ser Ile Leu Gln Ala  
 130 135 140  
 Thr Glu Gln Arg Arg Arg Ala Glu Glu Asn Ala Leu Gln Gln Lys Ala  
 145 150 155 160  
 Cys Gly Ser Glu Ile Met Gln Lys Lys Gln His Leu Glu Ile Glu Leu  
 165 170 175  
 Lys Gln Val Met Gln Gln Arg Ser Glu Asp Asn Ala Arg His Lys Gln  
 180 185 190  
 Ser Leu Glu Glu Ala Ala Lys Thr Ile Gln Asp Lys Asn Lys Glu Ile  
 195 200 205  
 Glu Arg Leu Lys Ala Glu Phe Gln Glu Glu Ala Lys Arg Arg Trp Glu  
 210 215 220  
 Tyr Glu Asn Glu Leu Ser Lys Val Arg Asn Asn Tyr Asp Glu Glu Ile  
 225 230 235 240  
 Ile Ser Leu Lys Asn Gln Phe Glu Thr Glu Ile Asn Ile Thr Lys Thr  
 245 250 255  
 Thr Ile His Gln Leu Thr Met Gln Lys Glu Glu Asp Thr Ser Gly Tyr  
 260 265 270  
 Arg Ala Gln Ile Asp Asn Leu Thr Arg Glu Asn Arg Ser Leu Ser Glu  
 275 280 285  
 Glu Ile Lys Arg Leu Lys Asn Thr Leu Thr Gln Thr Thr Glu Asn Leu  
 290 295 300  
 Arg Arg Val Glu Glu Asp Ile Gln Gln Gln Lys Ala Thr Gly Ser Glu  
 305 310 315 320  
 Val Ser Gln Arg Lys Gln Gln Leu Glu Val Glu Leu Arg Gln Val Thr  
 325 330 335  
 Gln Met Arg Thr Glu Glu Ser Val Arg Tyr Lys Gln Ser Leu Asp Asp  
 340 345 350  
 Ala Ala Lys Thr Ile Gln Asp Lys Asn Lys Glu Ile Glu Arg Leu Lys  
 355 360 365  
 Gln Leu Ile Asp Lys Glu Thr Asn Asp Arg Lys Cys Leu Glu Asp Glu  
 370 375 380  
 Asn Ala Arg Leu Gln Arg Val Gln Tyr Asp Leu Gln Lys Ala Asn Ser  
 385 390 395 400  
 Ser Ala Thr Glu Thr Ile Asn Lys Leu Lys Val Gln Glu Gln Glu Leu

405 410 415  
 Thr Arg Leu Arg Ile Asp Tyr Glu Arg Val Ser Gln Glu Arg Thr Val  
 420 425 430  
 Lys Asp Gln Asp Ile Thr Arg Phe Gln Asn Ser Leu Lys Glu Leu Gln  
 435 440 445  
 Leu Gln Lys Gln Lys Val Glu Glu Glu Leu Asn Arg Leu Lys Arg Thr  
 450 455 460  
 Ala Ser Glu Asp Ser Cys Lys Arg Lys Lys Leu Glu Glu Leu Glu  
 465 470 475 480  
 Gly Met Arg Arg Ser Leu Lys Glu Gln Ala Ile Lys Ile Thr Asn Leu  
 485 490 495  
 Thr Gln Gln Leu Glu Gln Ala Ser Ile Val Lys Lys Arg Ser Glu Asp  
 500 505 510  
 Asp Leu Arg Gln Gln Arg Asp Val Leu Asp Gly His Leu Arg Glu Lys  
 515 520 525  
 Gln Arg Thr Gln Glu Glu Leu Arg Arg Leu Ser Ser Glu Val Glu Ala  
 530 535 540  
 Leu Arg Arg Gln Leu Leu Gln Glu Gln Glu Ser Val Lys Gln Ala His  
 545 550 555 560  
 Leu Arg Asn Glu His Phe Gln Lys Ala Ile Glu Asp Lys Ser Arg Ser  
 565 570 575  
 Leu Asn Glu Ser Lys Ile Glu Ile Glu Arg Leu Gln Ser Leu Thr Glu  
 580 585 590  
 Asn Leu Thr Lys Glu His Leu Met Leu Glu Glu Glu Leu Arg Asn Leu  
 595 600 605  
 Arg Leu Glu Tyr Asp Asp Leu Arg Arg Gly Arg Ser Glu Ala Asp Ser  
 610 615 620  
 Asp Lys Asn Ala Thr Ile Leu Glu Leu Arg Ser Gln Leu Gln Ile Ser  
 625 630 635 640  
 Asn Asn Arg Thr Leu Glu Leu Gln Gly Leu Ile Asn Asp Leu Gln Arg  
 645 650 655  
 Glu Arg Glu Asn Leu Arg Gln Glu Ile Glu Lys Phe Gln Lys Gln Ala  
 660 665 670  
 Leu Glu Ala Ser Asn Arg Ile Gln Glu Ser Lys Asn Gln Cys Thr Gln  
 675 680 685  
 Val Val Gln Glu Arg Glu Ser Leu Leu Val Lys Ile Lys Val Leu Glu  
 690 695 700  
 Gln Asp Lys Ala Arg Leu Gln Arg Leu Glu Asp Glu Leu Asn Arg Ala  
 705 710 715 720  
 Lys Ser Thr Leu Glu Ala Glu Thr Arg Val Lys Gln Arg Leu Glu Cys  
 725 730 735  
 Glu Lys Gln Gln Ile Gln Asn Asp Leu Asn Gln Trp Lys Thr Gln Tyr  
 740 745 750  
 Ser Arg Lys Glu Glu Ala Ile Arg Lys Ile Glu Ser Glu Arg Glu Lys  
 755 760 765  
 Ser Glu Arg Glu Lys Asn Ser Leu Arg Ser Glu Ile Glu Arg Leu Gln  
 770 775 780  
 Ala Glu Ile Lys Arg Ile Glu Glu Arg Cys Arg Arg Lys Leu Glu Asp  
 785 790 795 800  
 Ser Thr Arg Glu Thr Gln Ser Gln Leu Glu Thr Glu Arg Ser Arg Tyr  
 805 810 815  
 Gln Arg Glu Ile Asp Lys Leu Arg Gln Arg Pro Tyr Gly Ser His Arg  
 820 825 830  
 Glu Thr Gln Thr Glu Cys Glu Trp Thr Val Asp Thr Ser Lys Leu Val  
 835 840 845

Phe Asp Gly Leu Arg Lys Lys Val Thr Ala Met Gln Leu Tyr Glu Cys  
 850 855 860  
 Gln Leu Ile Asp Lys Thr Thr Leu Asp Lys Leu Leu Lys Gly Lys Lys  
 865 870 875 880  
 Ser Val Glu Glu Val Ala Ser Glu Ile Gln Pro Phe Leu Arg Gly Ala  
 885 890 895  
 Gly Ser Ile Ala Gly Ala Ser Ala Ser Pro Lys Glu Lys Tyr Ser Leu  
 900 905 910  
 Val Glu Ala Lys Arg Lys Lys Leu Ile Ser Pro Glu Ser Thr Val Met  
 915 920 925  
 Leu Leu Glu Ala Gln Ala Ala Thr Gly Gly Ile Ile Asp Pro His Arg  
 930 935 940  
 Asn Glu Lys Leu Thr Val Asp Ser Ala Ile Ala Arg Asp Leu Ile Asp  
 945 950 955 960  
 Phe Asp Asp Arg Gln Gln Ile Tyr Ala Ala Glu Lys Ala Ile Thr Gly  
 965 970 975  
 Phe Asp Asp Pro Phe Ser Gly Lys Thr Val Ser Val Ser Glu Ala Ile  
 980 985 990  
 Lys Lys Asn Leu Ile Asp Arg Glu Thr Gly Met Arg Leu Leu Glu Ala  
 995 1000 1005  
 Gln Ile Ala Ser Gly Gly Val Val Asp Pro Val Asn Ser Val Phe Leu  
 1010 1015 1020  
 Pro Lys Asp Val Ala Leu Ala Arg Gly Leu Ile Asp Arg Asp Leu Tyr  
 1025 1030 1035 104  
 Arg Ser Leu Asn Asp Pro Arg Asp Ser Gln Lys Asn Phe Val Asp Pro  
 1045 1050 1055  
 Val Thr Lys Lys Lys Val Ser Tyr Val Gln Leu Lys Glu Arg Cys Arg  
 1060 1065 1070  
 Ile Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser  
 1075 1080 1085  
 Met Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val  
 1090 1095 1100  
 Asp Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly  
 1105 1110 1115 112  
 Gln Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln  
 1125 1130 1135  
 Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys  
 1140 1145 1150  
 Leu Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr  
 1155 1160 1165  
 Ala Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp  
 1170 1175 1180  
 Pro Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly  
 1185 1190 1195 120  
 Leu Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala  
 1205 1210 1215  
 Val Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe  
 1220 1225 1230  
 Gln Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu  
 1235 1240 1245  
 Leu Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser  
 1250 1255 1260  
 His Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu  
 1265 1270 1275 128  
 Glu Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe

	1285		1290		1295
Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu					
	1300		1305		1310
Arg Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys					
	1315		1320		1325
Glu Lys Lys Lys Gln Val Gln Thr Ser Gln Lys Asn Thr Leu Arg Lys					
	1330		1335		1340
Arg Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys Glu Met Ser Val					
	1345		1350		1355
Gln Glu Ala Tyr Lys Lys Gly Leu Ile Asp Tyr Glu Thr Phe Lys Glu					
	1365		1370		1375
Leu Cys Glu Gln Glu Cys Glu Trp Glu Glu Ile Thr Ile Thr Gly Ser					
	1380		1385		1390
Asp Gly Ser Thr Arg Val Val Leu Val Asp Arg Lys Thr Gly Ser Gln					
	1395		1400		1405
Tyr Asp Ile Gln Asp Ala Ile Asp Lys Gly Leu Val Asp Arg Lys Phe					
	1410		1415		1420
Phe Asp Gln Tyr Arg Ser Gly Ser Leu Ser Leu Thr Gln Phe Ala Asp					
	1425		1430		1435
Met Ile Ser Leu Lys Asn Gly Val Gly Thr Ser Ser Ser Met Gly Ser					
	1445		1450		1455
Gly Val Ser Asp Asp Val Phe Ser Ser Ser Arg His Glu Ser Val Ser					
	1460		1465		1470
Lys Ile Ser Thr Ile Ser Ser Val Arg Asn Leu Thr Ile Arg Ser Ser					
	1475		1480		1485
Ser Phe Ser Asp Thr Leu Glu Glu Ser Ser Pro Ile Ala Ala Ile Phe					
	1490		1495		1500
Asp Thr Glu Asn Leu Glu Lys Ile Ser Ile Thr Glu Gly Ile Glu Arg					
	1505		1510		1515
Gly Ile Val Asp Ser Ile Thr Gly Gln Arg Leu Leu Glu Ala Gln Ala					
	1525		1530		1535
Cys Thr Gly Gly Ile Ile His Pro Thr Thr Gly Gln Lys Leu Ser Leu					
	1540		1545		1550
Gln Asp Ala Val Ser Gln Gly Val Ile Asp Gln Asp Met Ala Thr Ser					
	1555		1560		1565
Val Lys Pro Ala Gln Lys Ala Phe Ile Gly Phe Glu Gly Val Lys Gly					
	1570		1575		1580
Lys Lys Lys Met Ser Ala Ala Glu Ala Val Lys Glu Lys Trp Leu Pro					
	1585		1590		1595
Tyr Glu Ala Gly Gln Arg Phe Leu Glu Phe Gln Tyr Leu Thr Gly Gly					
	1605		1610		1615
Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu Glu Ala Ile					
	1620		1625		1630
Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg Leu Gln Asp Thr					
	1635		1640		1645
Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys Thr Lys Leu Lys Ile					
	1650		1655		1660
Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met Val Glu Asp Ile Thr Gly					
	1665		1670		1675
Leu Arg Leu Leu Glu Ala Ala Ser Val Ser Ser Lys Gly Leu Pro Ser					
	1685		1690		1695
Pro Tyr Asn Met Ser Ser Ala Pro Gly Ser Arg Ser Gly Ser Arg Ser					
	1700		1705		1710
Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Arg					
	1715		1720		1725

Gly Ser Phe Asp Ala Thr Gly Asn Ser Ser Tyr Ser Tyr Ser Tyr Ser  
 1730 1735 1740  
 Phe Ser Ser Ser Ser Ile Gly His  
 1745 1750

<210> 73  
 <211> 1978  
 <212> PRT  
 <213> Homo Sapiens

<400> 73  
 Met Ser Arg Pro Arg Phe Asn Pro Arg Gly Asp Phe Pro Leu Gln Arg  
 1 5 10 15  
 Pro Arg Ala Pro Asn Pro Ser Gly Met Arg Pro Pro Gly Pro Phe Met  
 20 25 30  
 Arg Pro Gly Ser Met Gly Leu Pro Arg Phe Tyr Pro Ala Gly Arg Ala  
 35 40 45  
 Arg Gly Ile Pro His Arg Phe Ala Gly Leu Glu Ser Tyr Gln Asn Met  
 50 55 60  
 Gly Pro Gln Arg Met Asn Val Gln Val Thr Gln His Arg Thr Asp Pro  
 65 70 75 80  
 Arg Leu Thr Lys Glu Lys Leu Asp Phe His Glu Ala Gln Gln Lys Lys  
 85 90 95  
 Gly Lys Pro His Gly Ser Arg Trp Asp Asp Glu Pro His Ile Ser Ala  
 100 105 110  
 Ser Val Ala Val Lys Gln Ser Ser Val Thr Gln Val Thr Glu Gln Ser  
 115 120 125  
 Pro Lys Val Gln Ser Arg Tyr Thr Lys Glu Ser Ala Ser Ser Ile Leu  
 130 135 140  
 Ala Ser Phe Gly Leu Ser Asn Glu Asp Leu Glu Glu Leu Ser Arg Tyr  
 145 150 155 160  
 Pro Asp Glu Gln Leu Thr Pro Glu Asn Met Pro Leu Ile Leu Arg Asp  
 165 170 175  
 Ile Arg Met Arg Lys Met Gly Arg Arg Leu Pro Asn Leu Pro Ser Gln  
 180 185 190  
 Ser Arg Asn Lys Glu Thr Leu Gly Ser Glu Ala Val Ser Ser Asn Val  
 195 200 205  
 Ile Asp Tyr Gly His Ala Ser Lys Tyr Gly Tyr Thr Glu Asp Pro Leu  
 210 215 220  
 Glu Val Arg Ile Tyr Asp Pro Glu Ile Pro Thr Asp Glu Val Glu Asn  
 225 230 235 240  
 Glu Phe Gln Ser Gln Gln Asn Ile Ser Ala Ser Val Pro Asn Pro Asn  
 245 250 255  
 Val Ile Cys Asn Ser Met Phe Pro Val Glu Asp Val Phe Arg Gln Met  
 260 265 270  
 Asp Phe Pro Gly Glu Ser Ser Asn Asn Arg Ser Phe Phe Ser Val Glu  
 275 280 285  
 Ser Gly Thr Lys Met Ser Gly Leu His Ile Ser Gly Gly Gln Ser Val  
 290 295 300  
 Leu Glu Pro Ile Lys Ser Val Asn Gln Ser Ile Asn Gln Thr Val Ser  
 305 310 315 320  
 Gln Thr Met Ser Gln Ser Leu Ile Pro Pro Ser Met Asn Gln Gln Pro  
 325 330 335  
 Phe Ser Ser Glu Leu Ile Ser Ser Val Ser Gln Gln Glu Arg Ile Pro  
 340 345 350

His Glu Pro Val Ile Asn Ser Ser Asn Val His Val Gly Ser Arg Gly  
 355 360 365  
 Ser Lys Lys Asn Tyr Gln Ser Gln Ala Asp Ile Pro Ile Arg Ser Pro  
 370 375 380  
 Phe Gly Ile Val Lys Ala Ser Trp Leu Pro Lys Phe Ser His Ala Asp  
 385 390 395 400  
 Ala Gln Lys Met Lys Arg Leu Pro Thr Pro Ser Met Met Asn Asp Tyr  
 405 410 415  
 Tyr Ala Ala Ser Pro Arg Ile Phe Pro His Leu Cys Ser Leu Cys Asn  
 420 425 430  
 Val Glu Cys Ser His Leu Lys Asp Trp Ile Gln His Gln Asn Thr Ser  
 435 440 445  
 Thr His Ile Glu Ser Cys Arg Gln Leu Arg Gln Gln Tyr Pro Asp Trp  
 450 455 460  
 Asn Pro Glu Ile Leu Pro Ser Arg Arg Asn Glu Gly Asn Arg Lys Glu  
 465 470 475 480  
 Asn Glu Thr Pro Arg Arg Arg Ser His Ser Pro Ser Pro Arg Arg Ser  
 485 490 495  
 Arg Arg Ser Ser Ser Ser His Arg Phe Arg Arg Ser Arg Ser Pro Met  
 500 505 510  
 His Tyr Met Tyr Arg Pro Arg Ser Arg Ser Pro Arg Ile Cys His Arg  
 515 520 525  
 Phe Ile Ser Arg Tyr Arg Ser Arg Ser Arg Ser Arg Ser Pro Tyr Arg  
 530 535 540  
 Ile Arg Asn Pro Phe Arg Gly Ser Pro Lys Cys Phe Arg Ser Val Ser  
 545 550 555 560  
 Pro Glu Arg Met Ser Arg Arg Ser Val Arg Ser Ser Asp Arg Lys Lys  
 565 570 575  
 Ala Leu Glu Asp Val Val Gln Arg Ser Gly His Gly Thr Glu Phe Asn  
 580 585 590  
 Lys Gln Lys His Leu Glu Ala Ala Asp Lys Gly His Ser Pro Ala Gln  
 595 600 605  
 Lys Pro Lys Thr Ser Ser Gly Thr Lys Pro Ser Val Lys Pro Thr Ser  
 610 615 620  
 Ala Thr Lys Ser Asp Ser Asn Leu Gly Gly His Ser Ile Arg Cys Lys  
 625 630 635 640  
 Ser Lys Asn Leu Glu Asp Asp Thr Leu Ser Glu Cys Lys Gln Val Ser  
 645 650 655  
 Asp Lys Ala Val Ser Leu Gln Arg Lys Leu Arg Lys Glu Gln Ser Leu  
 660 665 670  
 His Tyr Gly Ser Val Leu Leu Ile Thr Glu Leu Pro Glu Asp Gly Cys  
 675 680 685  
 Thr Glu Glu Asp Val Arg Lys Leu Phe Gln Pro Phe Gly Lys Val Asn  
 690 695 700  
 Asp Val Leu Ile Val Pro Tyr Arg Lys Glu Ala Tyr Leu Glu Met Glu  
 705 710 715 720  
 Phe Lys Glu Ala Ile Thr Ala Ile Met Lys Tyr Ile Glu Thr Thr Pro  
 725 730 735  
 Leu Thr Ile Lys Gly Lys Ser Val Lys Ile Cys Val Pro Gly Lys Lys  
 740 745 750  
 Lys Ala Gln Asn Lys Glu Val Lys Lys Lys Thr Leu Glu Ser Lys Lys  
 755 760 765  
 Val Ser Ala Ser Thr Leu Lys Arg Asp Ala Asp Ala Ser Lys Ala Val  
 770 775 780  
 Glu Ile Val Thr Ser Thr Ser Ala Ala Lys Thr Gly Gln Ala Lys Ala

-43-

Glu Arg Asn Leu Lys Gly Ile Leu Glu Glu Ser Pro Ser Glu Ala Glu  
 1235 1240 1245  
 Asp Phe Ile Ser Gly Ile Thr Gln Thr Met Val Glu Ala Val Ala Glu  
 1250 1255 1260  
 Val Glu Lys Asn Glu Thr Val Ser Glu Ile Leu Pro Ser Thr Cys Ile  
 1265 1270 1275 128  
 Val Thr Leu Val Pro Gly Ile Pro Thr Gly Asp Glu Lys Thr Val Asp  
 1285 1290 1295  
 Lys Lys Asn Ile Ser Glu Lys Lys Gly Asn Met Asp Glu Lys Glu Glu  
 1300 1305 1310  
 Lys Glu Phe Asn Thr Lys Glu Thr Arg Met Asp Leu Gln Ile Gly Thr  
 1315 1320 1325  
 Glu Lys Ala Glu Lys Asn Glu Gly Arg Met Asp Ala Glu Lys Val Glu  
 1330 1335 1340  
 Lys Met Ala Ala Met Lys Glu Lys Pro Ala Glu Asn Thr Leu Phe Lys  
 1345 1350 1355 136  
 Ala Tyr Pro Asn Lys Gly Val Gly Gln Ala Asn Lys Pro Asp Glu Thr  
 1365 1370 1375  
 Ser Lys Thr Ser Ile Leu Ala Val Ser Asp Val Ser Ser Ser Lys Pro  
 1380 1385 1390  
 Ser Ile Lys Ala Val Ile Val Ser Ser Pro Lys Ala Lys Ala Thr Val  
 1395 1400 1405  
 Ser Lys Thr Glu Asn Gln Lys Ser Phe Pro Lys Ser Val Pro Arg Asp  
 1410 1415 1420  
 Gln Ile Asn Ala Glu Lys Lys Leu Ser Ala Lys Glu Phe Gly Leu Leu  
 1425 1430 1435 144  
 Lys Pro Thr Ser Ala Arg Ser Gly Leu Ala Glu Ser Ser Ser Lys Phe  
 1445 1450 1455  
 Lys Pro Thr Gln Ser Ser Leu Thr Arg Gly Gly Ser Gly Arg Ile Ser  
 1460 1465 1470  
 Ala Leu Gln Gly Lys Leu Ser Lys Leu Asp Tyr Arg Asp Ile Thr Lys  
 1475 1480 1485  
 Gln Ser Gln Glu Thr Glu Ala Arg Pro Ser Ile Met Lys Arg Asp Asp  
 1490 1495 1500  
 Ser Asn Asn Lys Thr Leu Ala Glu Gln Asn Thr Lys Asn Pro Lys Ser  
 1505 1510 1515 152  
 Thr Thr Gly Arg Ser Ser Lys Ser Lys Glu Glu Pro Leu Phe Pro Phe  
 1525 1530 1535  
 Asn Leu Asp Glu Phe Val Thr Val Asp Glu Val Ile Glu Glu Val Asn  
 1540 1545 1550  
 Pro Ser Gln Ala Lys Gln Asn Pro Leu Lys Gly Lys Arg Lys Glu Thr  
 1555 1560 1565  
 Leu Lys Asn Val Pro Phe Ser Glu Leu Asn Leu Lys Lys Lys Gly  
 1570 1575 1580  
 Lys Thr Ser Thr Pro Arg Gly Val Glu Gly Glu Leu Ser Phe Val Thr  
 1585 1590 1595 160  
 Leu Asp Glu Ile Gly Glu Glu Asp Ala Ala Ala His Leu Ala Gln  
 1605 1610 1615  
 Ala Leu Val Thr Val Asp Glu Val Ile Asp Glu Glu Glu Leu Asn Met  
 1620 1625 1630  
 Glu Glu Met Val Lys Asn Ser Asn Ser Leu Phe Thr Leu Asp Glu Leu  
 1635 1640 1645  
 Ile Asp Gln Asp Asp Cys Ile Ser His Ser Glu Pro Lys Asp Val Thr  
 1650 1655 1660  
 Val Leu Ser Val Ala Glu Glu Gln Asp Leu Leu Lys Gln Glu Arg Leu



1665                      1670                      1675                      168  
 Val Thr Val Asp Glu Ile Gly Glu Val Glu Glu Leu Pro Leu Asn Glu  
                                  1685                      1690                      1695  
 Ser Ala Asp Ile Thr Phe Ala Thr Leu Asn Thr Lys Gly Asn Glu Gly  
                                  1700                      1705                      1710  
 Asp Ile Val Arg Asp Ser Ile Gly Phe Ile Ser Ser Gln Val Pro Glu  
                                  1715                      1720                      1725  
 Asp Pro Ser Thr Leu Val Thr Val Asp Glu Ile Gln Asp Asp Ser Ser  
                                  1730                      1735                      1740  
 Asp Leu His Leu Val Thr Leu Asp Glu Val Thr Glu Glu Asp Glu Asp  
 1745                      1750                      1755                      176  
 Ser Leu Ala Asp Phe Asn Asn Leu Lys Glu Glu Leu Asn Phe Val Thr  
                                  1765                      1770                      1775  
 Val Asp Glu Val Gly Glu Glu Glu Asp Gly Asp Asn Asp Leu Lys Val  
                                  1780                      1785                      1790  
 Glu Leu Ala Gln Ser Lys Asn Asp His Pro Thr Asp Lys Lys Gly Asn  
                                  1795                      1800                      1805  
 Arg Lys Lys Arg Ala Val Asp Thr Lys Lys Thr Lys Leu Glu Ser Leu  
                                  1810                      1815                      1820  
 Ser Gln Val Gly Pro Val Asn Glu Asn Val Met Glu Glu Asp Leu Lys  
 1825                      1830                      1835                      184  
 Thr Met Ile Glu Arg His Leu Thr Ala Lys Thr Pro Thr Lys Arg Val  
                                  1845                      1850                      1855  
 Arg Ile Gly Lys Thr Leu Pro Ser Glu Lys Ala Val Val Thr Glu Pro  
                                  1860                      1865                      1870  
 Ala Lys Gly Glu Glu Ala Phe Gln Met Ser Glu Val Asp Glu Glu Ser  
                                  1875                      1880                      1885  
 Gly Leu Lys Asp Ser Glu Pro Glu Arg Lys Arg Lys Lys Thr Glu Asp  
                                  1890                      1895                      1900  
 Ser Ser Ser Gly Lys Ser Val Ala Ser Asp Val Pro Glu Glu Leu Asp  
 1905                      1910                      1915                      192  
 Phe Leu Val Pro Lys Ala Gly Phe Phe Cys Pro Ile Cys Ser Leu Phe  
                                  1925                      1930                      1935  
 Tyr Ser Gly Glu Lys Ala Met Thr Asn His Cys Lys Ser Thr Arg His  
                                  1940                      1945                      1950  
 Lys Gln Asn Thr Glu Lys Phe Met Ala Lys Gln Arg Lys Glu Lys Glu  
                                  1955                      1960                      1965  
 Gln Asn Glu Ala Glu Glu Arg Ser Ser Arg  
                                  1970                      1975

&lt;210&gt; 74

&lt;211&gt; 366

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 74

Met Arg Val Met Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala  
 1                      5                      10                      15  
 Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser His Ser Met Arg Tyr Phe  
                                  20                      25                      30  
 Tyr Thr Ala Val Ser Arg Pro Gly Arg Gly Glu Pro His Phe Ile Ala  
                                  35                      40                      45  
 Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala  
                                  50                      55                      60  
 Ala Ser Pro Arg Gly Glu Pro Arg Ala Pro Trp Val Glu Gln Glu Gly

```

65          70          75          80
Pro Glu Tyr Trp Asp Arg Glu Thr Gln Lys Tyr Lys Arg Gln Ala Gln
      85          90          95
Thr Asp Arg Val Ser Leu Arg Asn Leu Arg Gly Tyr Tyr Asn Gln Ser
      100         105         110
Glu Ala Gly Ser His Ile Ile Gln Arg Met Tyr Gly Cys Asp Val Gly
      115         120         125
Pro Asp Gly Arg Leu Leu Arg Gly Tyr Asp Gln Tyr Ala Tyr Asp Gly
      130         135         140
Lys Asp Tyr Ile Ala Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Ala
      145         150         155         160
Asp Thr Ala Ala Gln Ile Thr Gln Arg Lys Trp Glu Ala Ala Arg Glu
      165         170         175
Ala Glu Gln Leu Arg Ala Tyr Leu Glu Gly Leu Cys Val Glu Trp Leu
      180         185         190
Arg Arg Tyr Leu Lys Asn Gly Lys Glu Thr Leu Gln Arg Ala Glu His
      195         200         205
Pro Lys Thr His Val Thr His His Pro Val Ser Asp His Glu Ala Thr
      210         215         220
Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr
      225         230         235         240
Trp Gln Trp Asp Gly Glu Asp Gln Thr Gln Asp Thr Glu Leu Val Glu
      245         250         255
Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Val Val
      260         265         270
Val Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu
      275         280         285
Gly Leu Pro Glu Pro Leu Thr Leu Arg Trp Glu Pro Ser Ser Gln Pro
      290         295         300
Thr Ile Pro Ile Val Gly Ile Val Ala Gly Leu Ala Val Leu Ala Val
      305         310         315         320
Leu Ala Val Leu Gly Ala Val Val Ala Val Val Met Cys Arg Arg Lys
      325         330         335
Ser Ser Gly Gly Lys Gly Gly Ser Cys Ser Gln Ala Ala Ser Ser Asn
      340         345         350
Ser Ala Gln Gly Ser Asp Glu Ser Leu Ile Ala Cys Lys Ala
      355         360         365

```

&lt;210&gt; 75

&lt;211&gt; 240

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 75

```

Met Gly Leu Glu Leu Tyr Leu Asp Leu Leu Ser Gln Pro Cys Arg Ala
1          5          10          15
Val Tyr Ile Phe Ala Lys Lys Asn Asp Ile Pro Phe Glu Leu Arg Ile
      20          25          30
Val Asp Leu Ile Lys Gly Gln His Leu Ser Asp Ala Phe Ala Gln Val
      35          40          45
Asn Pro Leu Lys Lys Val Pro Ala Leu Lys Asp Gly Asp Phe Thr Leu
      50          55          60
Thr Glu Ser Val Ala Ile Leu Leu Tyr Leu Thr Arg Lys Tyr Lys Val
      65          70          75          80
Pro Asp Tyr Trp Tyr Pro Gln Asp Leu Gln Ala Arg Ala Arg Val Asp

```

```

      85              90              95
Glu Tyr Leu Ala Trp Gln His Thr Thr Leu Arg Arg Ser Cys Leu Arg
      100              105              110
Ala Leu Trp His Lys Val Met Phe Pro Val Phe Leu Gly Gly Pro Val
      115              120              125
Ser Pro Gln Thr Leu Ala Ala Thr Leu Ala Glu Leu Asp Val Thr Leu
      130              135              140
Gln Leu Leu Glu Asp Lys Phe Leu Gln Asn Lys Ala Phe Leu Thr Gly
      145              150              155              160
Pro His Ile Ser Leu Ala Asp Leu Val Ala Ile Thr Glu Leu Met His
      165              170              175
Pro Val Gly Ala Gly Cys Gln Val Phe Glu Gly Arg Pro Lys Leu Ala
      180              185              190
Thr Trp Arg Gln Arg Val Glu Ala Val Gly Glu Asp Leu Phe Gln
      195              200              205
Glu Ala His Glu Val Ile Leu Lys Ala Lys Asp Phe Pro Pro Ala Asp
      210              215              220
Pro Thr Ile Lys Gln Lys Leu Met Pro Trp Val Leu Ala Met Ile Arg
      225              230              235              240

```

<210> 76  
 <211> 953  
 <212> PRT  
 <213> Homo Sapiens

```

      <400> 76
Met Ile Thr Ser Ala Ala Gly Ile Ile Ser Leu Leu Asp Glu Asp Glu
  1              5              10              15
Pro Gln Leu Lys Glu Phe Ala Leu His Lys Leu Asn Ala Val Val Asn
      20              25              30
Asp Phe Trp Ala Glu Ile Ser Glu Ser Val Asp Lys Ile Glu Val Leu
      35              40              45
Tyr Glu Asp Glu Gly Phe Arg Ser Arg Gln Phe Ala Ala Leu Val Ala
      50              55              60
Ser Lys Val Phe Tyr His Leu Gly Ala Phe Glu Glu Ser Leu Asn Tyr
      65              70              75              80
Ala Leu Gly Ala Arg Asp Leu Phe Asn Val Asn Asp Asn Ser Glu Tyr
      85              90              95
Val Glu Thr Ile Ile Ala Lys Cys Ile Asp His Tyr Thr Lys Gln Cys
      100              105              110
Val Glu Asn Ala Asp Leu Pro Glu Gly Glu Lys Lys Pro Ile Asp Gln
      115              120              125
Arg Leu Glu Gly Ile Val Asn Lys Met Phe Gln Arg Cys Leu Asp Asp
      130              135              140
His Lys Tyr Lys Gln Ala Ile Gly Ile Ala Leu Glu Thr Arg Arg Leu
      145              150              155              160
Asp Val Phe Glu Lys Thr Ile Leu Glu Ser Asn Asp Val Pro Gly Met
      165              170              175
Leu Ala Tyr Ser Leu Lys Leu Cys Met Ser Leu Met Gln Asn Lys Gln
      180              185              190
Phe Arg Asn Lys Val Leu Arg Val Leu Val Lys Ile Tyr Met Asn Leu
      195              200              205
Glu Lys Pro Asp Phe Ile Asn Val Cys Gln Cys Leu Ile Phe Leu Asp
      210              215              220
Asp Pro Gln Ala Val Ser Asp Ile Leu Glu Lys Leu Val Lys Glu Asp

```

```

225          230          235          240
Asn Leu Leu Met Ala Tyr Gln Ile Cys Phe Asp Leu Tyr Glu Ser Ala
          245          250          255
Ser Gln Gln Phe Leu Ser Ser Val Ile Gln Asn Leu Arg Thr Val Gly
          260          265          270
Thr Pro Ile Ala Ser Val Pro Gly Ser Thr Asn Thr Gly Thr Val Pro
          275          280          285
Gly Ser Glu Lys Asp Ser Asp Ser Met Glu Thr Glu Glu Lys Thr Ser
          290          295          300
Ser Ala Phe Val Gly Lys Thr Pro Glu Ala Ser Pro Glu Pro Lys Asp
305          310          315          320
Gln Thr Leu Lys Met Ile Lys Ile Leu Ser Gly Glu Met Ala Ile Glu
          325          330          335
Leu His Leu Gln Phe Leu Ile Arg Asn Asn Thr Asp Leu Met Ile
          340          345          350
Leu Lys Asn Thr Lys Asp Ala Val Arg Asn Ser Val Cys His Thr Ala
          355          360          365
Thr Val Ile Ala Asn Ser Phe Met His Cys Gly Thr Thr Ser Asp Gln
          370          375          380
Phe Leu Arg Asp Asn Leu Glu Trp Leu Ala Arg Ala Thr Asn Trp Ala
385          390          395          400
Lys Phe Thr Ala Thr Ala Ser Leu Gly Val Ile His Lys Gly His Glu
          405          410          415
Lys Glu Ala Leu Gln Leu Met Ala Thr Tyr Leu Pro Lys Asp Thr Ser
          420          425          430
Pro Gly Ser Ala Tyr Gln Glu Gly Gly Leu Tyr Ala Leu Gly Leu
          435          440          445
Ile His Ala Asn His Gly Gly Asp Ile Ile Asp Tyr Leu Leu Asn Gln
          450          455          460
Leu Lys Asn Ala Ser Asn Asp Ile Val Arg His Gly Gly Ser Leu Gly
465          470          475          480
Leu Gly Leu Ala Ala Met Gly Thr Ala Arg Gln Asp Val Tyr Asp Leu
          485          490          495
Leu Lys Thr Asn Leu Tyr Gln Asp Asp Ala Val Thr Gly Glu Ala Ala
          500          505          510
Gly Leu Ala Leu Gly Leu Val Met Leu Gly Ser Lys Asn Ala Gln Ala
          515          520          525
Ile Glu Asp Met Val Gly Tyr Ala Gln Glu Thr Gln His Glu Lys Ile
          530          535          540
Leu Arg Gly Leu Ala Val Gly Ile Ala Leu Val Met Tyr Gly Arg Met
545          550          555          560
Glu Glu Ala Asp Ala Leu Ile Glu Ser Leu Cys Arg Asp Lys Asp Pro
          565          570          575
Ile Leu Arg Arg Ser Gly Met Tyr Thr Val Ala Met Ala Tyr Cys Gly
          580          585          590
Ser Gly Asn Asn Lys Ala Ile Arg Arg Leu Leu His Val Ala Val Ser
          595          600          605
Asp Val Asn Asp Asp Val Arg Ser Ala Ala Val Glu Ser Leu Gly Phe
          610          615          620
Ile Leu Phe Arg Thr Pro Glu Gln Cys Pro Ser Val Val Ser Leu Leu
625          630          635          640
Ser Glu Ser Tyr Asn Pro His Val Arg Tyr Gly Ala Ala Met Ala Leu
          645          650          655
Gly Ile Cys Cys Ala Gly Thr Gly Asn Lys Glu Ala Ile Asn Leu Leu
          660          665          670

```

Glu Pro Met Thr Asn Asp Pro Val Asn Tyr Val Arg Gln Gly Ala Leu  
 675 680 685  
 Ile Ala Ser Ala Leu Ile Met Ile Gln Gln Thr Glu Ile Thr Cys Pro  
 690 695 700  
 Lys Val Asn Gln Phe Arg Gln Leu Tyr Ser Lys Val Ile Asn Asp Lys  
 705 710 715 720  
 His Asp Asp Val Met Ala Lys Phe Gly Ala Ile Leu Ala Gln Gly Ile  
 725 730 735  
 Leu Asp Ala Gly Gly His Asn Val Thr Ile Ser Leu Gln Ser Arg Thr  
 740 745 750  
 Gly His Thr His Met Pro Ser Val Val Gly Val Leu Val Phe Thr Gln  
 755 760 765  
 Phe Trp Phe Trp Phe Pro Leu Ser His Phe Leu Ser Leu Ala Tyr Thr  
 770 775 780  
 Pro Thr Cys Val Ile Gly Leu Asn Lys Asp Leu Lys Met Pro Lys Val  
 785 790 795 800  
 Gln Tyr Lys Ser Asn Cys Lys Pro Ser Thr Phe Ala Tyr Pro Ala Pro  
 805 810 815  
 Leu Glu Val Pro Lys Glu Lys Glu Lys Glu Lys Val Ser Thr Ala Val  
 820 825 830  
 Leu Ser Ile Thr Ala Lys Ala Lys Lys Lys Glu Lys Glu Lys Glu Lys  
 835 840 845  
 Lys Glu Glu Glu Lys Met Glu Val Asp Glu Ala Glu Lys Lys Glu Glu  
 850 855 860  
 Lys Glu Lys Lys Lys Glu Pro Glu Pro Asn Phe Gln Leu Leu Asp Asn  
 865 870 875 880  
 Pro Ala Arg Val Met Pro Ala Gln Leu Lys Val Leu Thr Met Pro Glu  
 885 890 895  
 Thr Cys Arg Tyr Gln Pro Phe Lys Pro Leu Ser Ile Gly Gly Ile Ile  
 900 905 910  
 Ile Leu Lys Asp Thr Ser Glu Asp Ile Glu Glu Leu Val Glu Pro Val  
 915 920 925  
 Ala Ala His Gly Pro Lys Ile Glu Glu Glu Glu Gln Glu Pro Glu Pro  
 930 935 940  
 Pro Glu Pro Phe Glu Tyr Ile Asp Asp  
 945 950

&lt;210&gt; 77

&lt;211&gt; 335

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 77

Met Gly Lys Val Lys Val Gly Val Asn Gly Phe Gly Arg Ile Gly Arg  
 1 5 10 15  
 Leu Val Thr Arg Ala Ala Phe Asn Ser Gly Lys Val Asp Ile Val Ala  
 20 25 30  
 Ile Asn Asp Pro Phe Ile Asp Leu Asn Tyr Met Val Tyr Met Phe Gln  
 35 40 45  
 Tyr Asp Ser Thr His Gly Lys Phe His Gly Thr Val Lys Ala Glu Asn  
 50 55 60  
 Gly Lys Leu Val Ile Asn Gly Asn Pro Ile Thr Ile Phe Gln Glu Arg  
 65 70 75 80  
 Asp Pro Ser Lys Ile Lys Trp Gly Asp Ala Gly Ala Glu Tyr Val Val  
 85 90 95

Glu Ser Thr Gly Val Phe Thr Thr Met Glu Lys Ala Gly Ala His Leu  
                   100                  105                  110  
 Gln Gly Gly Ala Lys Arg Val Ile Ile Ser Ala Pro Ser Ala Asp Ala  
                   115                  120                  125  
 Pro Met Phe Val Met Gly Val Asn His Glu Lys Tyr Asp Asn Ser Leu  
                   130                  135                  140  
 Lys Ile Ile Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Leu  
 145                  150                  155                  160  
 Ala Lys Val Ile His Asp Asn Phe Gly Ile Val Glu Gly Leu Met Thr  
                   165                  170                  175  
 Thr Val His Ala Ile Thr Ala Thr Gln Lys Thr Val Asp Gly Pro Ser  
                   180                  185                  190  
 Gly Lys Leu Trp Arg Asp Gly Arg Gly Ala Leu Gln Asn Ile Ile Pro  
                   195                  200                  205  
 Ala Ser Thr Gly Ala Ala Lys Ala Val Gly Lys Val Ile Pro Glu Leu  
                   210                  215                  220  
 Asn Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Thr Ala Asn Val  
 225                  230                  235                  240  
 Ser Val Val Asp Leu Thr Cys Arg Leu Glu Lys Pro Ala Lys Tyr Asp  
                   245                  250                  255  
 Asp Ile Lys Lys Val Val Lys Gln Ala Ser Glu Gly Pro Leu Lys Gly  
                   260                  265                  270  
 Ile Leu Gly Tyr Thr Glu His Gln Val Val Ser Ser Asp Phe Asn Ser  
                   275                  280                  285  
 Asp Thr His Ser Ser Thr Phe Asp Ala Gly Ala Gly Ile Ala Leu Asn  
                   290                  295                  300  
 Asp His Phe Val Lys Leu Ile Ser Trp Tyr Asp Asn Glu Phe Gly Tyr  
 305                  310                  315                  320  
 Ser Asn Arg Val Val Asp Leu Met Ala His Met Ala Ser Lys Glu  
                   325                  330                  335

<210> 78  
 <211> 117  
 <212> PRT  
 <213> Homo Sapiens

<400> 78  
 Met Val Gln Arg Leu Thr Tyr Arg Arg Arg Leu Ser Tyr Asn Thr Ala  
   1                  5                  10                  15  
 Ser Asn Lys Thr Arg Leu Ser Arg Thr Pro Gly Asn Arg Ile Val Tyr  
                   20                  25                  30  
 Leu Tyr Thr Lys Lys Val Gly Lys Ala Pro Lys Ser Ala Cys Gly Val  
                   35                  40                  45  
 Cys Pro Gly Lys Leu Arg Gly Val Arg Pro Val Arg Pro Lys Val Leu  
                   50                  55                  60  
 Met Arg Leu Ser Lys Thr Lys Lys His Val Ser Arg Ala Tyr Gly Gly  
 65                  70                  75                  80  
 Ser Met Cys Ala Lys Cys Val Arg Asp Arg Ile Lys Arg Ala Phe Leu  
                   85                  90                  95  
 Ile Glu Glu Gln Lys Ile Ile Val Lys Val Leu Lys Ala Gln Ala Gln  
                   100                  105                  110  
 Ser Gln Lys Ala Lys  
                   115

<210> 79

<211> 614  
 <212> PRT  
 <213> Homo Sapiens

<400> 79  
 Arg Ser Gly Gln Pro Arg Ala Glu Gly Leu Gly Ala Gly Ala Ala Gly  
 1 5 10 15  
 Pro Leu Arg Ala Met Ala Ala Pro Val Lys Gly Asn Arg Lys Gln Ser  
 20 25 30  
 Thr Glu Gly Asp Ala Leu Asp Pro Pro Ala Ser Pro Lys Pro Ala Gly  
 35 40 45  
 Lys Gln Asn Gly Ile Gln Asn Pro Ile Ser Leu Glu Asp Ser Pro Glu  
 50 55 60  
 Ala Gly Gly Glu Arg Glu Glu Glu Gln Glu Arg Glu Glu Gln Ala  
 65 70 75 80  
 Phe Leu Val Ser Leu Tyr Lys Phe Met Lys Glu Arg His Thr Pro Ile  
 85 90 95  
 Glu Arg Val Pro His Leu Gly Phe Lys Gln Ile Asn Leu Trp Lys Ile  
 100 105 110  
 Tyr Lys Ala Val Glu Lys Leu Gly Ala Tyr Glu Leu Val Thr Gly Arg  
 115 120 125  
 Arg Leu Trp Lys Asn Val Tyr Asp Glu Leu Gly Gly Ser Pro Gly Ser  
 130 135 140  
 Thr Ser Ala Ala Thr Cys Thr Arg Arg His Tyr Glu Arg Leu Val Leu  
 145 150 155 160  
 Pro Tyr Val Arg His Leu Lys Gly Glu Asp Asp Lys Pro Leu Pro Thr  
 165 170 175  
 Ser Lys Pro Arg Lys Gln Tyr Lys Met Ala Lys Glu Asn Arg Gly Asp  
 180 185 190  
 Asp Gly Ala Thr Glu Arg Pro Lys Lys Ala Lys Glu Glu Arg Arg Met  
 195 200 205  
 Asp Gln Met Met Pro Gly Lys Thr Lys Ala Asp Ala Ala Asp Pro Ala  
 210 215 220  
 Pro Leu Pro Ser Gln Glu Pro Pro Arg Asn Ser Thr Glu Gln Gln Gly  
 225 230 235 240  
 Leu Ala Ser Gly Ser Ser Val Ser Phe Val Gly Ala Ser Gly Cys Pro  
 245 250 255  
 Glu Ala Tyr Lys Arg Leu Leu Ser Ser Phe Tyr Cys Lys Gly Thr His  
 260 265 270  
 Gly Ile Met Ser Pro Leu Ala Lys Lys Lys Leu Leu Ala Gln Val Ser  
 275 280 285  
 Lys Val Glu Ala Leu Gln Cys Gln Glu Glu Gly Cys Arg His Gly Ala  
 290 295 300  
 Glu Pro Gln Ala Ser Pro Ala Val His Leu Pro Glu Ser Pro Gln Ser  
 305 310 315 320  
 Pro Lys Gly Leu Thr Glu Asn Ser Arg His Arg Leu Thr Pro Gln Glu  
 325 330 335  
 Gly Leu Gln Ala Pro Gly Gly Ser Leu Arg Glu Glu Ala Gln Ala Gly  
 340 345 350  
 Pro Cys Pro Ala Ala Pro Ile Phe Lys Gly Cys Phe Tyr Thr His Pro  
 355 360 365  
 Thr Glu Val Leu Lys Pro Val Ser Gln His Pro Arg Asp Phe Phe Ser  
 370 375 380  
 Arg Leu Lys Asp Gly Val Leu Leu Gly Pro Pro Gly Lys Glu Gly Leu  
 385 390 395 400

Ser Val Lys Glu Pro Gln Leu Val Trp Gly Gly Asp Ala Asn Arg Pro  
                             405                            410                            415  
 Ser Ala Phe His Lys Gly Gly Ser Arg Lys Gly Ile Leu Tyr Pro Lys  
                             420                            425                            430  
 Pro Lys Ala Cys Trp Val Ser Pro Met Ala Lys Val Pro Ala Glu Ser  
                             435                            440                            445  
 Pro Thr Leu Pro Pro Thr Phe Pro Ser Ser Pro Gly Leu Gly Ser Lys  
                             450                            455                            460  
 Arg Ser Leu Glu Glu Glu Gly Ala Ala His Ser Gly Lys Arg Leu Arg  
                             465                            470                            475                            480  
 Ala Val Ser Pro Phe Leu Lys Glu Ala Asp Ala Lys Lys Cys Gly Ala  
                             485                            490                            495  
 Lys Pro Ala Gly Ser Gly Leu Val Ser Cys Leu Leu Gly Pro Ala Leu  
                             500                            505                            510  
 Gly Pro Val Pro Pro Glu Ala Tyr Arg Gly Thr Met Leu His Cys Pro  
                             515                            520                            525  
 Leu Asn Phe Thr Gly Thr Pro Gly Pro Leu Lys Gly Gln Ala Ala Leu  
                             530                            535                            540  
 Pro Phe Ser Pro Leu Val Ile Pro Ala Phe Pro Ala His Phe Leu Ala  
                             545                            550                            555                            560  
 Thr Ala Gly Pro Ser Pro Met Ala Ala Gly Leu Met His Phe Pro Pro  
                             565                            570                            575  
 Thr Ser Phe Asp Ser Ala Leu Arg His Arg Leu Cys Pro Ala Ser Ser  
                             580                            585                            590  
 Ala Trp His Ala Pro Pro Val Thr Thr Tyr Ala Ala Pro His Phe Phe  
                             595                            600                            605  
 His Leu Asn Thr Lys Leu  
                             610

<210> 80  
 <211> 114  
 <212> PRT  
 <213> Homo Sapiens

<400> 80  
 Met Ala Ser Val Ser Glu Leu Ala Cys Ile Tyr Ser Ala Leu Ile Leu  
   1                            5                            10                            15  
 His Asp Asp Glu Val Thr Val Thr Glu Asp Lys Ile Asn Ala Leu Ile  
                             20                            25                            30  
 Lys Ala Ala Gly Val Asn Val Glu Pro Phe Trp Pro Gly Leu Phe Ala  
                             35                            40                            45  
 Lys Ala Leu Ala Asn Val Asn Ile Gly Ser Leu Ile Cys Asn Val Gly  
                             50                            55                            60  
 Ala Gly Gly Pro Ala Pro Ala Ala Gly Ala Ala Pro Ala Gly Gly Pro  
   65                            70                            75                            80  
 Ala Pro Ser Thr Ala Ala Ala Pro Ala Glu Glu Lys Lys Val Glu Ala  
                             85                            90                            95  
 Lys Lys Glu Glu Ser Glu Glu Ser Asp Asp Asp Met Gly Phe Gly Leu  
                             100                            105                            110  
 Phe Asp

<210> 81  
 <211> 596  
 <212> PRT



&lt;213&gt; Homo Sapiens

&lt;400&gt; 81

```

Met Arg Arg Ala His Glu Gly Arg Glu Ile Pro Ser Leu Gly Gly Ala
 1              5              10              15
Arg Arg Arg Glu Val Leu Gln Ala Gly Arg Ser Gln Arg Ala Ala Gly
      20              25              30
Arg Arg Arg Arg Arg Gln Glu Leu Glu Leu Gly Val Gly Ser Gly Arg
      35              40              45
Pro Gly Gly Pro Pro Pro Gly Pro Gly Arg Arg Gly Thr Cys Ala Ala
      50              55              60
Ala Leu Pro Pro Glu Trp Pro Arg Arg Arg Thr Gly Leu Pro Arg Arg
      65              70              75              80
Gly Pro Arg Pro Pro Leu Ala Met Ala Lys Trp Leu Asn Lys Tyr Phe
      85              90              95
Ser Leu Gly Asn Ser Lys Thr Lys Ser Pro Pro Gln Pro Pro Arg Pro
      100             105             110
Asp Tyr Arg Glu Gln Arg Arg Arg Gly Glu Arg Pro Ser Gln Pro Pro
      115             120             125
Gln Ala Val Pro Gln Ala Ser Ser Ala Ala Ser Ala Ser Cys Gly Pro
      130             135             140
Ala Thr Ala Ser Cys Phe Ser Ala Ser Ser Gly Ser Leu Pro Asp Asp
      145             150             155             160
Ser Gly Ser Thr Ser Asp Leu Ile Arg Ala Tyr Arg Ala Gln Lys Glu
      165             170             175
Arg His Phe Gln Asp Pro Tyr Asn Gly Pro Gly Ser Ser Leu Arg Lys
      180             185             190
Leu Arg Ala Met Cys Arg Leu Asp Tyr Cys Gly Gly Ser Gly Glu Pro
      195             200             205
Gly Gly Val Gln Arg Ala Phe Ser Ala Ser Ser Ala Ser Gly Ala Ala
      210             215             220
Gly Cys Cys Cys Ala Ser Ser Gly Ala Gly Ala Ala Ala Ser Ser Ser
      225             230             235             240
Ser Ser Ser Gly Ser Pro His Leu Tyr Arg Ser Ser Ser Glu Arg Arg
      245             250             255
Pro Ala Thr Pro Ala Glu Val Arg Tyr Ile Ser Pro Lys His Arg Leu
      260             265             270
Ile Lys Val Glu Ser Ala Ala Gly Gly Gly Ala Gly Asp Pro Leu Gly
      275             280             285
Gly Ala Cys Ala Gly Gly Arg Thr Trp Ser Pro Thr Ala Cys Gly Gly
      290             295             300
Lys Lys Leu Leu Asn Lys Cys Ala Ala Ser Ala Ala Glu Glu Ser Gly
      305             310             315             320
Ala Gly Lys Lys Asp Lys Val Thr Ile Ala Asp Asp Tyr Ser Asp Pro
      325             330             335
Phe Asp Ala Lys Asn Asp Leu Lys Ser Lys Ala Gly Lys Gly Glu Ser
      340             345             350
Ala Gly Tyr Met Glu Pro Tyr Glu Ala Gln Arg Ile Met Thr Glu Phe
      355             360             365
Gln Arg Gln Glu Ser Val Arg Ser Gln His Lys Gly Ile Gln Leu Tyr
      370             375             380
Asp Thr Pro Tyr Glu Pro Glu Gly Gln Ser Val Asp Ser Asp Ser Glu
      385             390             395             400
Ser Thr Val Ser Pro Arg Leu Arg Glu Ser Lys Leu Pro Gln Asp Asp
      405             410             415

```

Asp Arg Pro Ala Asp Glu Tyr Asp Gln Pro Trp Glu Trp Asn Arg Val  
 420 425 430  
 Thr Ser Pro Ala Leu Ala Ala Gln Phe Asn Gly Asn Glu Lys Arg Gln  
 435 440 445  
 Ser Ser Pro Ser Pro Ser Arg Asp Arg Arg Arg Gln Leu Arg Ala Pro  
 450 455 460  
 Gly Gly Gly Phe Lys Pro Ile Lys His Gly Ser Pro Glu Phe Cys Gly  
 465 470 475 480  
 Ile Leu Gly Glu Arg Val Asp Pro Ala Val Pro Leu Glu Lys Gln Ile  
 485 490 495  
 Trp Tyr His Gly Ala Ile Ser Arg Gly Asp Ala Glu Asn Leu Leu Arg  
 500 505 510  
 Leu Cys Lys Glu Cys Ser Tyr Leu Val Arg Asn Ser Gln Thr Ser Lys  
 515 520 525  
 His Asp Tyr Pro Leu Ser Leu Arg Ser Asn Gln Gly Phe Met His Met  
 530 535 540  
 Lys Leu Ala Lys Thr Lys Glu Lys Tyr Val Leu Gly Gln Asn Ser Pro  
 545 550 555 560  
 Pro Phe Asp Ser Val Pro Glu Val Ile His Tyr Tyr Thr Thr Arg Lys  
 565 570 575  
 Leu Pro Ile Lys Gly Ala Glu His Leu Ser Leu Leu Tyr Pro Val Ala  
 580 585 590  
 Val Arg Thr Leu  
 595

&lt;210&gt; 82

&lt;211&gt; 207

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 82

Met Ser Pro Leu Leu Arg Arg Leu Leu Leu Ala Ala Leu Leu Gln Leu  
 1 5 10 15  
 Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His Gln  
 20 25 30  
 Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys Gln  
 35 40 45  
 Pro Arg Glu Val Val Val Pro Leu Thr Val Glu Leu Met Gly Thr Val  
 50 55 60  
 Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly Gly  
 65 70 75 80  
 Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His Gln  
 85 90 95  
 Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu Gly  
 100 105 110  
 Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys Lys  
 115 120 125  
 Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His Arg  
 130 135 140  
 Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala Pro  
 145 150 155 160  
 Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser Ala  
 165 170 175  
 His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala Ala  
 180 185 190

Ala Ala Ala Asp Ala Ala Ala Ser Ser Val Ala Lys Gly Gly Ala  
 195 200 205

<210> 83  
 <211> 429  
 <212> PRT  
 <213> Homo Sapiens

<400> 83  
 Glu Cys Asp Val Met Thr Tyr Val Arg Glu Thr Cys Gly Cys Cys Asp  
 1 5 10 15  
 Cys Glu Lys Arg Cys Gly Ala Leu Asp Val Val Phe Val Ile Asp Ser  
 20 25 30  
 Ser Glu Ser Ile Gly Tyr Thr Asn Phe Thr Leu Glu Lys Asn Phe Val  
 35 40 45  
 Ile Asn Val Val Asn Arg Leu Gly Ala Ile Ala Lys Asp Pro Lys Ser  
 50 55 60  
 Glu Thr Gly Thr Arg Val Gly Val Val Gln Tyr Ser His Glu Gly Thr  
 65 70 75 80  
 Phe Glu Ala Ile Gln Leu Asp Asp Glu His Ile Asp Ser Leu Ser Ser  
 85 90 95  
 Phe Lys Glu Ala Val Lys Asn Leu Glu Trp Ile Ala Gly Gly Thr Trp  
 100 105 110  
 Thr Pro Ser Ala Leu Lys Phe Ala Tyr Asp Arg Leu Ile Lys Glu Ser  
 115 120 125  
 Arg Arg Gln Lys Thr Arg Val Phe Ala Val Val Ile Thr Asp Gly Arg  
 130 135 140  
 His Asp Pro Arg Asp Asp Leu Asn Leu Arg Ala Leu Cys Asp Arg  
 145 150 155 160  
 Asp Val Thr Val Thr Ala Ile Gly Ile Gly Asp Met Phe His Glu Lys  
 165 170 175  
 His Glu Ser Glu Asn Leu Tyr Ser Ile Ala Cys Asp Lys Pro Gln Gln  
 180 185 190  
 Val Arg Asn Met Thr Leu Phe Ser Asp Leu Val Ala Glu Lys Phe Ile  
 195 200 205  
 Asp Asp Met Glu Asp Val Leu Cys Pro Asp Pro Gln Ile Val Cys Pro  
 210 215 220  
 Asp Leu Pro Cys Gln Thr Glu Leu Ser Val Ala Gln Cys Thr Gln Arg  
 225 230 235 240  
 Pro Val Asp Ile Val Phe Leu Leu Asp Gly Ser Glu Arg Leu Gly Glu  
 245 250 255  
 Gln Asn Phe His Lys Ala Arg Arg Phe Val Glu Gln Val Ala Arg Arg  
 260 265 270  
 Leu Thr Leu Ala Arg Arg Asp Asp Asp Pro Leu Asn Ala Arg Val Ala  
 275 280 285  
 Leu Leu Gln Phe Gly Gly Pro Gly Glu Gln Gln Val Ala Phe Pro Leu  
 290 295 300  
 Ser His Asn Leu Thr Ala Ile His Glu Ala Leu Glu Thr Thr Gln Tyr  
 305 310 315 320  
 Leu Asn Ser Phe Ser His Val Gly Ala Gly Val Val His Ala Ile Asn  
 325 330 335  
 Ala Ile Val Arg Ser Pro Arg Gly Gly Ala Arg Arg His Ala Glu Leu  
 340 345 350  
 Ser Phe Val Phe Leu Thr Asp Gly Val Thr Gly Asn Asp Ser Leu His  
 355 360 365

Glu Ser Ala His Ser Met Arg Asn Glu Asn Val Val Pro Thr Val Leu  
 370 375 380  
 Ala Leu Gly Ser Asp Val Asp Met Asp Val Leu Thr Thr Leu Ser Leu  
 385 390 395 400  
 Gly Asp Arg Ala Ala Val Phe His Glu Lys Asp Tyr Asp Ser Leu Ala  
 405 410 415  
 Gln Pro Gly Phe Phe Asp Arg Phe Ile Arg Trp Ile Cys  
 420 425

<210> 84  
 <211> 113  
 <212> PRT  
 <213> Homo Sapiens

<400> 84  
 Met Ser Ala Ser Val Val Ser Val Ile Ser Arg Phe Leu Glu Glu Tyr  
 1 5 10 15  
 Leu Ser Ser Thr Pro Gln Arg Leu Lys Leu Leu Asp Ala Tyr Leu Leu  
 20 25 30  
 Tyr Ile Leu Leu Thr Gly Ala Leu Gln Phe Gly Tyr Cys Leu Leu Val  
 35 40 45  
 Gly Thr Phe Pro Phe Asn Ser Phe Leu Ser Gly Phe Ile Ser Cys Val  
 50 55 60  
 Gly Ser Phe Ile Leu Ala Val Cys Leu Arg Ile Gln Ile Asn Pro Gln  
 65 70 75 80  
 Asn Lys Ala Asp Phe Gln Gly Ile Ser Pro Glu Arg Ala Phe Ala Asp  
 85 90 95  
 Phe Leu Phe Ala Ser Thr Ile Leu His Leu Val Val Met Asn Phe Val  
 100 105 110  
 Gly

<210> 85  
 <211> 258  
 <212> PRT  
 <213> Homo Sapiens

<400> 85  
 Met Ile Asn Ile Glu Ser Met Asp Thr Asp Lys Asp Asp Pro His Gly  
 1 5 10 15  
 Arg Leu Glu Tyr Thr Glu His Gln Gly Arg Ile Lys Asn Ala Arg Glu  
 20 25 30  
 Ala His Ser Gln Ile Glu Lys Arg Arg Arg Asp Lys Met Asn Ser Phe  
 35 40 45  
 Ile Asp Glu Leu Ala Ser Leu Val Pro Thr Cys Asn Ala Met Ser Arg  
 50 55 60  
 Lys Leu Asp Lys Leu Thr Val Leu Arg Met Ala Val Gln His Met Lys  
 65 70 75 80  
 Thr Leu Arg Gly Ala Thr Asn Pro Tyr Thr Glu Ala Asn Tyr Lys Pro  
 85 90 95  
 Thr Phe Leu Ser Asp Asp Glu Leu Lys His Leu Ile Leu Arg Ala Ala  
 100 105 110  
 Asp Gly Phe Leu Phe Val Val Gly Cys Asp Arg Gly Lys Ile Leu Phe  
 115 120 125  
 Val Ser Glu Ser Val Phe Lys Ile Leu Asn Tyr Ser Gln Asn Asp Leu

130 135 140  
 Ile Gly Gln Ser Leu Phe Asp Tyr Leu His Pro Lys Asp Ile Ala Lys  
 145 150 155 160  
 Val Lys Glu Gln Leu Ser Ser Ser Asp Thr Ala Pro Arg Glu Arg Leu  
 165 170 175  
 Ile Asp Ala Lys Thr Gly Leu Pro Val Lys Thr Asp Ile Thr Pro Gly  
 180 185 190  
 Pro Ser Arg Leu Cys Ser Gly Ala Arg Arg Ser Phe Phe Cys Arg Met  
 195 200 205  
 Lys Cys Asn Arg Pro Ser Val Asn Val Glu Asp Lys Asn Phe Pro Ser  
 210 215 220  
 Thr Cys Ser Lys Lys Lys Ala Asp Arg Lys Ala Phe Cys Thr Ile His  
 225 230 235 240  
 Ser Thr Gly Tyr Phe Gly Ile Phe Thr Thr Arg Thr Ser Arg His Ile  
 245 250 255  
 Val Leu

<210> 86  
 <211> 569  
 <212> PRT  
 <213> Homo Sapiens

<400> 86  
 Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr  
 1 5 10 15  
 Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu  
 20 25 30  
 Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr  
 35 40 45  
 Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys  
 50 55 60  
 Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu Leu Gly Leu Ser  
 65 70 75 80  
 Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu Asn Ala Val Glu  
 85 90 95  
 Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Arg Leu Cys Gln Glu  
 100 105 110  
 Asn Gln Trp Leu Arg Asp Glu Leu Ala Asn Thr Gln Gln Lys Leu Gln  
 115 120 125  
 Lys Ser Glu Gln Ser Val Ala Gln Leu Glu Glu Glu Lys Lys His Leu  
 130 135 140  
 Glu Phe Met Asn Gln Leu Lys Lys Tyr Asp Asp Asp Ile Ser Pro Ser  
 145 150 155 160  
 Glu Asp Lys Asp Thr Asp Ser Thr Lys Glu Pro Leu Asp Asp Leu Phe  
 165 170 175  
 Pro Asn Asp Glu Asp Asp Pro Gly Gln Gly Ile Gln Gln Gln His Ser  
 180 185 190  
 Ser Ala Ala Ala Ala Ala Gln Gln Gly Gly Tyr Glu Ile Pro Ala Arg  
 195 200 205  
 Leu Arg Thr Leu His Asn Leu Val Ile Gln Tyr Ala Ser Gln Gly Arg  
 210 215 220  
 Tyr Glu Val Ala Val Pro Leu Cys Lys Gln Ala Leu Glu Asp Leu Glu  
 225 230 235 240  
 Lys Thr Ser Gly His Asp His Pro Asp Val Ala Thr Met Leu Asn Ile

```

                245                250                255
Leu Ala Leu Val Tyr Arg Asp Gln Asn Lys Tyr Lys Asp Ala Ala Asn
                260                265                270
Leu Leu Asn Asp Ala Leu Ala Ile Arg Glu Lys Thr Leu Gly Lys Asp
                275                280                285
His Pro Ala Val Ala Ala Thr Leu Asn Asn Leu Ala Val Leu Tyr Gly
                290                295                300
Lys Arg Gly Lys Tyr Lys Glu Ala Glu Pro Leu Cys Lys Arg Ala Leu
305                310                315                320
Glu Ile Arg Glu Lys Val Leu Gly Lys Asp His Pro Asp Val Ala Lys
                325                330                335
Gln Leu Asn Asn Leu Ala Leu Leu Cys Gln Asn Gln Gly Lys Tyr Glu
                340                345                350
Glu Val Glu Tyr Tyr Tyr Gln Arg Ala Leu Glu Ile Tyr Gln Thr Lys
                355                360                365
Leu Gly Pro Asp Asp Pro Asn Val Ala Lys Thr Lys Asn Asn Leu Ala
370                375                380
Ser Cys Tyr Leu Lys Gln Gly Lys Phe Lys Gln Ala Glu Thr Leu Tyr
385                390                395                400
Lys Glu Ile Leu Thr Arg Ala His Glu Arg Glu Phe Gly Ser Val Asp
                405                410                415
Asp Glu Asn Lys Pro Ile Trp Met His Ala Glu Glu Arg Glu Glu Cys
                420                425                430
Lys Gly Lys Gln Lys Asp Gly Thr Ser Phe Gly Glu Tyr Gly Gly Trp
                435                440                445
Tyr Lys Ala Cys Lys Val Asp Ser Pro Thr Val Thr Thr Thr Leu Lys
450                455                460
Asn Leu Gly Ala Leu Tyr Arg Arg Gln Gly Lys Phe Glu Ala Ala Glu
465                470                475                480
Thr Leu Glu Glu Ala Ala Met Arg Ser Arg Lys Gln Gly Leu Asp Asn
                485                490                495
Val His Lys Gln Arg Val Ala Glu Val Leu Asn Asp Pro Glu Asn Met
500                505                510
Glu Lys Arg Arg Ser Arg Glu Ser Leu Asn Val Asp Val Val Lys Tyr
515                520                525
Glu Ser Gly Pro Asp Gly Gly Glu Glu Val Ser Met Ser Val Glu Trp
530                535                540
Asn Gly Gly Val Ser Gly Arg Ala Ser Phe Cys Gly Lys Arg Gln Gln
545                550                555                560
Gln Gln Trp Pro Gly Arg Arg His Arg
                565

```

&lt;210&gt; 87

&lt;211&gt; 736

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 87

```

Met Glu Ala Leu Ile Pro Val Ile Asn Lys Leu Gln Asp Val Phe Asn
1          5          10          15
Thr Val Gly Ala Asp Ile Ile Gln Leu Pro Gln Ile Val Val Val Gly
20          25          30
Thr Gln Ser Ser Gly Lys Ser Ser Val Leu Glu Ser Leu Val Gly Arg
35          40          45
Asp Leu Leu Pro Arg Gly Thr Gly Ile Val Thr Arg Arg Pro Leu Ile

```

50. 55 60  
 Leu Gln Leu Val His Val Thr Gln Glu Asp Lys Arg Lys Thr Thr Gly  
 65 70 75 80  
 Glu Glu Asn Gly Val Glu Ala Glu Glu Trp Gly Lys Phe Leu His Thr  
 85 90 95  
 Lys Asn Lys Leu Tyr Thr Asp Phe Asp Glu Ile Arg Gln Glu Ile Glu  
 100 105 110  
 Asn Glu Thr Glu Arg Ile Ser Gly Asn Asn Lys Gly Val Ser Pro Glu  
 115 120 125  
 Pro Ile His Leu Lys Ile Phe Ser Pro Asn Val Val Asn Leu Thr Leu  
 130 135 140  
 Val Asp Leu Pro Gly Met Thr Lys Val Pro Val Gly Asp Gln Pro Lys  
 145 150 155 160  
 Asp Ile Glu Leu Gln Ile Arg Glu Leu Ile Leu Arg Phe Ile Ser Asn  
 165 170 175  
 Pro Asn Ser Ile Ile Leu Ala Val Thr Ala Ala Asn Thr Asp Met Ala  
 180 185 190  
 Thr Ser Glu Ala Leu Lys Ile Ser Arg Glu Val Asp Pro Asp Gly Arg  
 195 200 205  
 Arg Thr Leu Ala Val Ile Thr Lys Leu Asp Leu Met Asp Ala Gly Thr  
 210 215 220  
 Asp Ala Met Asp Val Leu Met Gly Arg Val Ile Pro Val Lys Leu Gly  
 225 230 235 240  
 Ile Ile Gly Val Val Asn Arg Ser Gln Leu Asp Ile Asn Asn Lys Lys  
 245 250 255  
 Ser Val Thr Asp Ser Ile Arg Asp Glu Tyr Ala Phe Leu Gln Lys Lys  
 260 265 270  
 Tyr Pro Ser Leu Ala Asn Arg Asn Gly Thr Lys Tyr Leu Ala Arg Thr  
 275 280 285  
 Leu Asn Arg Leu Leu Met His His Ile Arg Asp Cys Leu Pro Glu Leu  
 290 295 300  
 Lys Thr Arg Ile Asn Val Leu Ala Ala Gln Tyr Gln Ser Leu Leu Asn  
 305 310 315 320  
 Ser Tyr Gly Glu Pro Val Asp Asp Lys Ser Ala Thr Leu Leu Gln Leu  
 325 330 335  
 Ile Thr Lys Phe Ala Thr Glu Tyr Cys Asn Thr Ile Glu Gly Thr Ala  
 340 345 350  
 Lys Tyr Ile Glu Thr Ser Glu Leu Cys Gly Gly Ala Arg Ile Cys Tyr  
 355 360 365  
 Ile Phe His Glu Thr Phe Gly Arg Thr Leu Glu Ser Val Asp Pro Leu  
 370 375 380  
 Gly Gly Leu Asn Thr Ile Asp Ile Leu Thr Ala Ile Arg Asn Ala Thr  
 385 390 395 400  
 Gly Pro Arg Pro Ala Leu Phe Val Pro Glu Val Ser Phe Glu Leu Leu  
 405 410 415  
 Val Lys Arg Gln Ile Lys Arg Leu Glu Glu Pro Ser Leu Arg Cys Val  
 420 425 430  
 Glu Leu Val His Glu Glu Met Gln Arg Ile Ile Gln His Cys Ser Asn  
 435 440 445  
 Tyr Ser Thr Gln Glu Leu Leu Arg Phe Pro Lys Leu His Asp Ala Ile  
 450 455 460  
 Val Glu Val Val Thr Cys Leu Leu Arg Lys Arg Leu Pro Val Thr Asn  
 465 470 475 480  
 Glu Met Val His Asn Leu Val Ala Ile Glu Leu Ala Tyr Ile Asn Thr  
 485 490 495

Lys His Pro Asp Phe Ala Asp Ala Cys Gly Leu Met Asn Asn Asn Ile  
                   500                                  505                                  510  
 Glu Glu Gln Arg Arg Asn Arg Leu Ala Arg Glu Leu Pro Ser Ala Val  
                   515                                  520                                  525  
 Ser Arg Asp Lys Ser Ser Lys Val Pro Ser Ala Leu Ala Pro Ala Ser  
                   530                                  535                                  540  
 Gln Glu Pro Ser Pro Ala Ala Ser Ala Glu Ala Asp Gly Lys Leu Ile  
 545                                  550                                  555                                  560  
 Gln Asp Ser Arg Arg Glu Thr Lys Asn Val Ala Ser Gly Gly Gly Gly  
                                   565                                  570                                  575  
 Val Gly Asp Gly Val Gln Glu Pro Thr Thr Gly Asn Trp Arg Gly Met  
                                   580                                  585                                  590  
 Leu Lys Thr Ser Lys Ala Glu Glu Leu Leu Ala Glu Glu Lys Ser Lys  
                                   595                                  600                                  605  
 Pro Ile Pro Ile Met Pro Ala Ser Pro Gln Lys Gly His Ala Val Asn  
 610                                  615                                  620  
 Leu Leu Asp Val Pro Val Pro Val Ala Arg Lys Leu Ser Ala Arg Glu  
 625                                  630                                  635                                  640  
 Gln Arg Asp Cys Glu Val Ile Glu Arg Leu Ile Lys Ser Tyr Phe Leu  
                                   645                                  650                                  655  
 Ile Val Arg Lys Asn Ile Gln Asp Ser Val Pro Lys Ala Val Met His  
                                   660                                  665                                  670  
 Phe Leu Val Asn His Val Lys Asp Thr Leu Gln Ser Glu Leu Val Gly  
                                   675                                  680                                  685  
 Gln Leu Tyr Lys Ser Ser Leu Leu Asp Asp Leu Leu Thr Glu Ser Glu  
 690                                  695                                  700  
 Asp Met Ala Gln Arg Arg Lys Glu Ala Ala Asp Met Leu Lys Ala Leu  
 705                                  710                                  715                                  720  
 Gln Gly Ala Ser Gln Ile Ile Ala Glu Ile Arg Glu Thr His Leu Trp  
                                   725                                  730                                  735

<210> 88  
 <211> 37  
 <212> PRT  
 <213> Homo Sapiens

<400> 88  
 Met Gly Asp His Ala Trp Ser Phe Leu Lys Asp Phe Leu Ala Gly Gly  
   1                                  5                                  10                                  15  
 Val Ala Ala Ala Val Ser Lys Thr Ala Val Ala Pro Ile Glu Arg Val  
                                   20                                  25                                  30  
 Lys Leu Leu Leu Gln  
                                   35

<210> 89  
 <211> 1381  
 <212> DNA  
 <213> Homo Sapiens

<400> 89  
 ccgcagccct agagccgccc aagggatggc gatggcgtagc ttggcttggg gactggcgcg 60  
 gcgttcgtgt ccgagttctc tgcaggtcnc tantttccc gtagttcanc tgcncatgaa 120  
 tanaacagca atgagagccn ctncaaaaga ctttgaaaat tcaactgaatc nagtgaaact 180  
 ctngaaaaag gatccangaa acgaaatgaa nctnaaaactc tncgcgctat atnancangc 240  
 cncctgaanga cttgtntcat gcccnaacca ngtgtntttg acttgatcna caaggggcca 300



```

atgggacaca tggaaatgcc ttggcancct gccnaagaa ctgccaggca naactatgtg 360
gatttgggtg ccannttgat tccntccttg gaatectcna atcnngtgga ncctggaaca 420
nacaggaaat ccaactgggt tgaaactctg gtggtgacct ccgaagatgg catcacaag 480
atcatgttca accggcccaa aaagaaaaat gccataaaca ctgagatgta tcatgaaatt 540
atgcgtgcac ttaaagctgc cagcaaggat gactcaatca tcactgtttt aacaggaaat 600
ggtgactatt acagtagtgg gaatgatctg actaacttca ctgatattcc ccctgggtgga 660
gtagaggaga aagctaaaaa taatgccgtt ttactgaggg aatttgtggg ctgttttata 720
gattttccta agcctctgat tgcagtggtc aatgggtccag ctgtgggcat ctccgtcacc 780
ctccttgggc tattcgatgc cgtgtatgca tctgacaggg caacatttca tacaccattt 840
agtcacctag gccaaagtcc ggaaggatgc tcctcttaca cttttccgaa gataatgagc 900
ccagccaagg caacagagat gcttattttt ggaaagaagt taacagcggg agaggcatgt 960
gctcaaggac ttgttactga agttttccct gatagcactt ttcagaaaga agtctggacc 1020
aggctgaagg catttgcaaa gcttccccc aatgccttga gaatttcaaa agaggtaatc 1080
aggaaaagag agagagaaaa actacacgct gttaatgctg aagaatgcaa tgccttcag 1140
ggaagatggc tatcagatga atgcacaaat gctgtggtga acttcttacc cagaaaatca 1200
aaactgtgat gaccactaca gcagagtaaa gcatgtccaa ggaaggatgt gctgttacct 1260
ctgatttcca gtactggaac taaataagct tcattgtgcc tttttagtg ctagaatatc 1320
aattacaatg atgatatttc actacagctc tgatgaataa aaagttttgt aaaacaagaa 1380
a

```

&lt;210&gt; 90

&lt;211&gt; 298

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 90

```

Thr Cys Met Pro Val Phe Asp Leu Ile Lys Gly Pro Met Gly His
1           5           10           15
Met Glu Cys Pro Trp Pro Ala Arg Thr Ala Arg Asn Tyr Val Asp Leu
20           25           30
Val Ser Leu Pro Ser Leu Glu Ser Ser Asn Val Pro Gly Thr Arg Lys
35           40           45
Ser Thr Gly Phe Glu Thr Leu Val Val Thr Ser Glu Asp Gly Ile Thr
50           55           60
Lys Ile Met Phe Asn Arg Pro Lys Lys Lys Asn Ala Ile Asn Thr Glu
65           70           75           80
Met Tyr His Glu Ile Met Arg Ala Leu Lys Ala Ala Ser Lys Asp Asp
85           90           95
Ser Ile Ile Thr Val Leu Thr Gly Asn Gly Asp Tyr Tyr Ser Ser Gly
100          105          110
Asn Asp Leu Thr Asn Phe Thr Asp Ile Pro Pro Gly Gly Val Glu Glu
115          120          125
Lys Ala Lys Asn Asn Ala Val Leu Leu Arg Glu Phe Val Gly Cys Phe
130          135          140
Ile Asp Phe Pro Lys Pro Leu Ile Ala Val Val Asn Gly Pro Ala Val
145          150          155          160
Gly Ile Ser Val Thr Leu Leu Gly Leu Phe Asp Ala Val Tyr Ala Ser
165          170          175
Asp Arg Ala Thr Phe His Thr Pro Phe Ser His Leu Gly Gln Ser Pro
180          185          190
Glu Gly Cys Ser Ser Tyr Thr Phe Pro Lys Ile Met Ser Pro Ala Lys
195          200          205
Ala Thr Glu Met Leu Ile Phe Gly Lys Lys Leu Thr Ala Gly Glu Ala
210          215          220
Cys Ala Gln Leu Val Thr Glu Val Phe Pro Asp Ser Thr Phe Gln Lys

```

```

225          230          235          240
Glu Val Trp Thr Lys Leu Lys Ala Phe Ala Lys Ala Ser Pro Lys Cys
          245          250          255
Leu Glu Asn Phe Lys Arg Gly Asn Gln Gly Lys Glu Arg Glu Lys Asn
          260          265          270
Tyr Thr Pro Leu Met Leu Lys Lys Cys Asn Val Pro Ser Arg Lys Gly
          275          280          285
Tyr Gln Asp Glu Cys Thr Lys Cys Leu Trp
          290          295

```

<210> 91  
 <211> 1514  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 91
gccgcgcgct gtgtctccgc tgcgtccgcc gagggccccc agtgtcaggg acaaaagcct      60
ccgcctgtct ccgcagccgg ggctcatctg ccgcgcgcgc cgcgctgagg agagttcgcc      120
gccgtcgccg ccgctgagga tctgagagcc atgtcggcca gcagcctctt ggagcagaga      180
ccaaaagggtc aaggaaacaa agtacaaaat ggatctgtac atcaaaagga tggattaaac      240
gatgatgatt ttgaacctta cttgagtcca caggcaaggc ccaataatgc atatactgcc      300
atgtcagatt cctacttacc cagttactac agtccctcca ttggcttctc ctattctttg      360
ggtgaagctg cttggtctac ggggggtgac acagccatgc cctacttaac ttcttatgga      420
cagctgagca acggagagcc ccacttecta ccagatgcaa tgtttgggca accaggagcc      480
ctaggtagca ctccatttct tggtcagcat ggttttaatt tctttcccag tgggattgac      540
ttctcagcat ggggaaataa cagttctcag ggacagtcta ctcagagctc tggatatagt      600
agcaattatg cttatgcacc tagctcctta ggtggagcca tgattgatgg acagtcagct      660
tttgccaatg agaccctcaa taaggctcct ggcatagaata ctatagacca agggatggca      720
gcactgaagt tgggtagcac agaagttgca agcaatgttc caaaagttgt aggttctgct      780
gttggttagcg ggtccattac tagtaacatc gtggcttcca atagtttgcc tccagccacc      840
attgtccttc caaaaccagc atcttgggct gatattgcta gcaagcctgc aaaacagcaa      900
cctaaactga agaccaagaa tggcattgca ggggtcaagtc ttccgccacc cccgataaag      960
cataacatgg atattggaac ttgggataac aagggtcccc ttgcaaaagc cccctcacag     1020
gctttgggtc agaatatagg tcagccaacc cagggtctc ctcagcctgt aggtcagcag     1080
gctaacaata gccaccagt ggctcaggca tcagtagggc aacagacaca gccattgcct     1140
ccacctccac cacagcctgc ccagctttca gtccagcaac aggcagctca gccaacccgc     1200
tgggtagcac ctcggaaccg tggcagtggtg ttcggtcata atgggggtgga tggtaatgga     1260
gtaggacagt ctcaggctgg ttctggatct actccttcag aacccccacc agtgttggag     1320
aagcttcggt ccattaataa ctataacccc aaagattttg actgggaaat ctgaaacatg     1380
ggcgggtttt catcattaa gaactactct gangacgata ttcaccgttc catttaagtt     1440
ataatatttg gtggancaca anagcaatgg taacaagaga atgggatgcc ngcttatcgt     1500
ttccatgaac gggg                                     1514

```

<210> 92  
 <211> 407  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 92
Met Ser Ala Ser Ser Leu Leu Glu Gln Arg Pro Lys Gly Gln Gly Asn
  1          5          10          15
Lys Val Gln Asn Gly Ser Val His Gln Lys Asp Gly Leu Asn Asp Asp
          20          25          30
Asp Phe Glu Pro Tyr Leu Ser Pro Gln Ala Arg Pro Asn Asn Ala Tyr
          35          40          45

```

```

Thr Ala Met Ser Asp Ser Tyr Leu Pro Ser Tyr Tyr Ser Pro Ser Ile
 50                      55                      60
Gly Phe Ser Tyr Ser Leu Gly Glu Ala Ala Trp Ser Thr Gly Gly Asp
65                      70                      75                      80
Thr Ala Met Pro Tyr Leu Thr Ser Tyr Gly Gln Leu Ser Asn Gly Glu
                      85                      90                      95
Pro His Phe Leu Pro Asp Ala Met Phe Gly Gln Pro Gly Ala Leu Gly
                      100                      105                      110
Ser Thr Pro Phe Leu Gly Gln His Gly Phe Asn Phe Phe Pro Ser Gly
                      115                      120                      125
Ile Asp Phe Ser Ala Trp Gly Asn Asn Ser Ser Gln Gly Gln Ser Thr
                      130                      135                      140
Gln Ser Ser Gly Tyr Ser Ser Asn Tyr Ala Tyr Ala Pro Ser Ser Leu
145                      150                      155                      160
Gly Gly Ala Met Ile Asp Gly Gln Ser Ala Phe Ala Asn Glu Thr Leu
                      165                      170                      175
Asn Lys Ala Pro Gly Met Asn Thr Ile Asp Gln Gly Met Ala Ala Leu
                      180                      185                      190
Lys Leu Gly Ser Thr Glu Val Ala Ser Asn Val Pro Lys Val Val Gly
                      195                      200                      205
Ser Ala Val Gly Ser Gly Ser Ile Thr Ser Asn Ile Val Ala Ser Asn
                      210                      215                      220
Ser Leu Pro Pro Ala Thr Ile Ala Pro Pro Lys Pro Ala Ser Trp Ala
225                      230                      235                      240
Asp Ile Ala Ser Lys Pro Ala Lys Gln Gln Pro Lys Leu Lys Thr Lys
                      245                      250                      255
Asn Gly Ile Ala Gly Ser Ser Leu Pro Pro Pro Pro Ile Lys His Asn
                      260                      265                      270
Met Asp Ile Gly Thr Trp Asp Asn Lys Gly Pro Val Ala Lys Ala Pro
                      275                      280                      285
Ser Gln Ala Leu Val Gln Asn Ile Gly Gln Pro Thr Gln Gly Ser Pro
                      290                      295                      300
Gln Pro Val Gly Gln Gln Ala Asn Asn Ser Pro Pro Val Ala Gln Ala
305                      310                      315                      320
Ser Val Gly Gln Gln Thr Gln Pro Leu Pro Pro Pro Pro Gln Pro
                      325                      330                      335
Ala Gln Leu Ser Val Gln Gln Gln Ala Ala Gln Pro Thr Arg Trp Val
                      340                      345                      350
Ala Pro Arg Asn Arg Gly Ser Gly Phe Gly His Asn Gly Val Asp Gly
                      355                      360                      365
Asn Gly Val Gly Gln Ser Gln Ala Gly Ser Gly Ser Thr Pro Ser Glu
                      370                      375                      380
Pro His Pro Val Leu Glu Lys Leu Arg Ser Ile Asn Asn Tyr Asn Pro
385                      390                      395                      400
Lys Asp Phe Asp Trp Glu Ile
                      405

```

&lt;210&gt; 93

&lt;211&gt; 2236

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 93

```

cctggcccggtcgcggcgcggctctttccagctcctggcagccggggcacccgaagggaac60
gggtcgtgcaacgacgcagctggacctggccagccatggaccgaaaagtggcccgagaa120

```

```

ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat 180
gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctg 240
gtcatcaatg aaccagccg tctgcctctg tttgatgcca ttcggccgct gatcccaactg 300
aagcaccagg tggaatatga tcagctgacc ccccgccgct ccaggaagct gaaggagggtg 360
cgtctggacc gtctgcaccc cgaaggcctc ggcttgagtg tgcgtggtgg cctggagttt 420
ggctgtgggc tcttcatctc ccacctcatc aaaggcggtc aggcagacag cgtcgggctc 480
caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg taccatgag 540
gaggtcatca acctattcg aaccaagaaa actgtgtcca tcaaagttag acacatcggc 600
ctgatccccg tgaagagctc tctgatgag cccctcactt ggcagtatgt ggatcagttt 660
gtgtcggaat ctggggcgct gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag 720
gagaagaagg tcttcatcag cctggtaggc tcccgaggcc ttggctgcag catttccagc 780
ggcccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct 840
gaggtgggat tggagatagg ggaccagatt gtgcaagtca atggcgtcga cttctctaac 900
ctggatcaca aggaggtgt aaatgtgctg aaaaatagcc gcagcctgac catctccatt 960
gtagctgcag ctggccggga gctgttcacg acagaccggg agcggctggc agaggcgagg 1020
cagcgtgagc tgcagcgga ggagcttctc atgcagaagc ggctggcgat ggagtccaac 1080
aagatcctcc aaaatgagca ggagatggag cggcaaagga gaaaagaaat tgcccagaag 1140
gcagcagagc aaaatgagag ataccggaag gagatggaac agattgtaga ggaggagag 1200
aagttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa 1260
accatcactg ctgaggtaca ccagtagcc cttcgcaagc caaagtatga tcaggagtg 1320
gaacctgagc tcgagcccg agatgacctg gatggaggca cggaggagca gggagagcag 1380
gatttccgga aatatgagga aggtttgac ccctactcta tgttcacccc agagcagatc 1440
atggggaagg atgtccggct cctacgcac aagaaggagg gatccttaga cctggccctg 1500
gaaggcggtg tggactcccc cattgggaag gtggtcggtt ctgctgtgta tgagcgggga 1560
gctgctgagc ggcattggtg cattgtgaaa ggggacgaga tcatggcaat caacggcaag 1620
attgtgacag actacacctt ggctgaggct gacgtgccc tgcagaaggc ctggaatcag 1680
ggcggggact ggcagacct tgtggttgcc gtctgcccc caaaggagta tgacgatgag 1740
ctgaccttct tgcgtgaagtc caaaagggga aaccaaatc acgcgttagg aaacagttag 1800
ctccggcccc acctcgtgaa caaaagcct cggaccagcc ttgagagagg ccacatgaca 1860
cacaccagat ggcattcctg ggacctgaat ctatcaccca ggaatctcaa actccctttg 1920
gccctgaacc agggccagat aaggaacagc tcgggccact tttttgaagg ccaatgtgga 1980
ggaaagggag cagccagccg tttgggagaa gatctcaagg atccagactc tcattccttt 2040
cctctggccc agtgaatttg gtctctccca gctttgggg actccttcct tgaaccctaa 2100
taagacccca ctggagtctc tctctctcca tccctctcct ctgccctctg ctctaattgc 2160
tgccaggatt gtcactccaa acctactct gagctcatta ataaaataaa cagatttatt 2220
ttccagctta aaaaaa 2236

```

&lt;210&gt; 94

&lt;211&gt; 652

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 94

```

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu
1           5           10          15
Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met
20          25          30
Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu
35          40          45
Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro
50          55          60
Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg
65          70          75          80
Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu
85          90          95

```

Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu  
 100 105 110  
 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu  
 115 120 125  
 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser  
 130 135 140  
 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val  
 145 150 155 160  
 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro  
 165 170 175  
 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser  
 180 185 190  
 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys  
 195 200 205  
 Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys  
 210 215 220  
 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His  
 225 230 235 240  
 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp  
 245 250 255  
 Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys  
 260 265 270  
 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile  
 275 280 285  
 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu  
 290 295 300  
 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln  
 305 310 315 320  
 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu  
 325 330 335  
 Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu  
 340 345 350  
 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu  
 355 360 365  
 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu  
 370 375 380  
 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg  
 385 390 395 400  
 Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp  
 405 410 415  
 Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Asp Phe Arg Lys  
 420 425 430  
 Tyr Glu Glu Gly Phe Asp Pro Tyr Ser Met Phe Thr Pro Glu Gln Ile  
 435 440 445  
 Met Gly Lys Asp Val Arg Leu Leu Arg Ile Lys Lys Glu Gly Ser Leu  
 450 455 460  
 Asp Leu Ala Leu Glu Gly Gly Val Asp Ser Pro Ile Gly Lys Val Val  
 465 470 475 480  
 Val Ser Ala Val Tyr Glu Arg Gly Ala Ala Glu Arg His Gly Gly Ile  
 485 490 495  
 Val Lys Gly Asp Glu Ile Met Ala Ile Asn Gly Lys Ile Val Thr Asp  
 500 505 510  
 Tyr Thr Leu Ala Glu Ala Asp Ala Leu Gln Lys Ala Trp Asn Gln  
 515 520 525  
 Gly Gly Asp Trp Ile Asp Leu Val Val Ala Val Cys Pro Pro Lys Glu

<400> 96															
Arg	Lys	Asn	Cys	Arg	Lys	His	Leu	Asp	Met	Lys	Tyr	Ile	Lys	His	Leu
1				5					10					15	
Leu	Pro	Tyr	Leu	Ser	Ser	Leu	Asn	Gln	Gly	Leu	Arg	His	Arg	Ala	Ala
			20					25					30		
Arg	Leu	Leu	Cys	Trp	Leu	Arg	Pro	His	Gly	Cys	Asn	Pro	Phe	Leu	Leu
		35					40						45		
Arg	Met	Gly	Phe	Trp	Asn	Pro	Leu	Ile	Pro	Ala	Arg	Arg	Pro	Leu	Pro
	50					55					60				
Cys	Pro	Arg	Lys	Pro	Gly	Arg	Glu	Tyr	Ala	Thr	Leu	Lys	Gly	Gly	Leu
65					70					75					80
Ala	Ile	Glu	Asp	Gln	Ile	Pro	Pro	Ser	Asn	Leu	Glu	Thr	Val	Pro	Val
				85					90					95	

Glu Asn Asn His Gly Phe His Glu Lys Thr Ala Ala Leu Lys Leu Glu  
 100 105 110  
 Ala Glu Gly Glu Ala Met Glu Asp Ala Ala Ala Pro Gly Asn Asp Arg  
 115 120 125  
 Gly Gly Thr Gln Glu Pro Ala Pro Val Pro Ala Glu Pro Phe Asp Asn  
 130 135 140  
 Thr Thr Tyr Lys Asn Leu Gln His His Asp Tyr Ser Thr Tyr Thr Phe  
 145 150 155 160  
 Leu Asp Leu Asn Leu Glu Leu Ser Lys Phe Arg Met Pro Gln Pro Ser  
 165 170 175  
 Ser Gly Arg Glu Ser Pro Arg His  
 180

<210> 97  
 <211> 1008  
 <212> DNA  
 <213> Homo Sapiens

<400> 97  
 gcaaggtctc caagtcccag ctcaaggtcc tttcccataa cctgtgcacg gtgctgaagg 60  
 ttccctcatga cccagttgcc cttgaagagc acttcaggga tgatgatgag ggtccagtgt 120  
 ccaaccagggt ctacatgcct tatttaaaca gggtcatttt ggaaaagggtc caagacaact 180  
 ttgacaagat tgaattcaat aggatgtgtt ggacctctctg tgtcaaaaaa aacctcacia 240  
 agaatccctt gctcattaca gaagaanatg catttaaaat atgggttatt ttcaactttt 300  
 tatctgagga caagtatcca ttaattattg tgcagaana gattgaatac ctgcttaaga 360  
 agcttacaga agctatggga ggaggttggc agcaagaaca atttgaacat tataaaatca 420  
 actttgatga cagtataaaat ggcctttctg catgggaact tattgagctt attggaaatg 480  
 gacagtttag caaaggcatg gaccggcaga ctgtgtctat ggcaattaat gaagtcttta 540  
 atgaacttat attagatgtg ttaaagcagg gttacatgat gaaaaagggc cacagacgga 600  
 aaaactggac tgaacgatgg tttgtactaa aaccaacat aatttcttac tatgtgagtg 660  
 aggatctgaa ggataagaaa ggagacattc tcttgatga aaattgctgt gtagagtcct 720  
 tgcctgacaa agatggaaaag aaatgccttt ttctcgtaaa atgttttgat aagacttttg 780  
 aaatcagtgct ttcaagataag aanaanaaac aggagtggat tcaagccatt cattctacta 840  
 ttcactctgtt gaagctgngc agccctccac canacaaaga agccnccag cttctnaaan 900  
 aactccgna gaatcatctg gctgaacaag angaactgga gcgacaaatg aangaactcc 960  
 aagcccgcga atgaaagcaa ncagcaagag ctggaaggcc ttncggaa 1008

<210> 98  
 <211> 312  
 <212> PRT  
 <213> Homo Sapiens

<400> 98  
 Lys Val Ser Lys Ser Gln Leu Lys Val Leu Ser His Asn Leu Cys Thr  
 1 5 10 15  
 Val Leu Lys Val Pro His Asp Pro Val Ala Leu Glu Glu His Phe Arg  
 20 25 30  
 Asp Asp Asp Glu Gly Pro Val Ser Asn Gln Gly Tyr Met Pro Tyr Leu  
 35 40 45  
 Asn Arg Phe Ile Leu Glu Lys Val Gln Asp Asn Phe Asp Lys Ile Glu  
 50 55 60  
 Phe Asn Arg Met Cys Trp Thr Leu Cys Val Lys Lys Asn Leu Thr Lys  
 65 70 75 80  
 Asn Pro Leu Leu Ile Thr Glu Glu Ala Phe Lys Ile Trp Val Ile Phe  
 85 90 95

Asn Phe Leu Ser Glu Asp Lys Tyr Pro Leu Ile Ile Val Ser Glu Ile  
 100 105 110  
 Glu Tyr Leu Leu Lys Lys Leu Thr Glu Ala Met Gly Gly Gly Trp Gln  
 115 120 125  
 Gln Glu Gln Phe Glu His Tyr Lys Ile Asn Phe Asp Asp Ser Lys Asn  
 130 135 140  
 Gly Leu Ser Ala Trp Glu Leu Ile Glu Leu Ile Gly Asn Gly Gln Phe  
 145 150 155 160  
 Ser Lys Gly Met Asp Arg Gln Thr Val Ser Met Ala Ile Asn Glu Val  
 165 170 175  
 Phe Asn Glu Leu Ile Leu Asp Val Leu Lys Gln Gly Tyr Met Met Lys  
 180 185 190  
 Lys Gly His Arg Arg Lys Asn Trp Thr Glu Arg Trp Phe Val Leu Lys  
 195 200 205  
 Pro Asn Ile Ile Ser Tyr Tyr Val Ser Glu Asp Leu Lys Asp Lys Lys  
 210 215 220  
 Gly Asp Ile Leu Leu Asp Glu Asn Cys Cys Val Glu Ser Leu Pro Asp  
 225 230 235 240  
 Lys Asp Gly Lys Lys Cys Leu Phe Leu Val Lys Cys Phe Asp Lys Thr  
 245 250 255  
 Phe Glu Ile Ser Ala Ser Asp Lys Lys Gln Glu Trp Ile Gln Ala Ile  
 260 265 270  
 His Ser Thr Ile His Leu Leu Lys Leu Ser Pro Pro Pro Lys Glu Ala  
 275 280 285  
 Gln Leu Leu Lys Leu Arg Asn His Leu Ala Glu Gln Glu Leu Glu Arg  
 290 295 300  
 Gln Met Glu Leu Gln Ala Arg Gln  
 305 310

<210> 99  
 <211> 1009  
 <212> DNA  
 <213> Homo Sapiens

<400> 99  
 ggctaagtga acatactcta ccacttggtc tgaagcccag cagtatctga tggataatcc 60  
 aacttttgca gaagatgagg agttacaaaa tatggacaaa gaagatgcat taatttgctt 120  
 tgaagaacac attcgggctt tagaaaagga ggaagaagaa gaaaaacaga agagtttgct 180  
 gagagaaagg agacgacagc gaaaaaatag ggaatctttc cagatatttt tagatgaatt 240  
 acatgaacat ggacaactgc attctatgtc atcttgatg gaattgtatc caactattag 300  
 ttctgatatt agattcacta atatgcttgg tcagcctgga tcaactgcac ttgatctttt 360  
 caagttttat gttgaggatc ttaaagcacg ttatcatgac gagaagaaga taataaaaga 420  
 cattctaaag gataaaggat ttgtagttga agtaaacact acttttgaag attttgtggc 480  
 gataatcagt tcaactaaaa gatcaactac attagatgct ggaaatatca aattggcctt 540  
 caatagttta ctagaaaagg cagaagcccg tgaacgtgaa agagaaaaag aagaggctcg 600  
 gaagatgaaa cgaaaagaat ctgcatttaa gagtatgtta aaacaagctg ctctccgat 660  
 agaattggat gctgtctggg aagatatccg tgagagattt gtaaaagagc cagcatttga 720  
 ggacataact ctagaatctg aaagaaaacg aatattttaa gattttatgc atgtgcttga 780  
 gcattgaatgt cagcatcatc attcaaagaa caagaaacat tctaagaaat ctaaaaaaca 840  
 tcataggaaa cgttcccgct ctcgatcggt gtcagattca ngatgatgat gatagccatt 900  
 caaagaaaaa aagacagcga tgagaagtct cggctctgntt canaacattc ttccantngc 960  
 agagtctgag agaagtntaa aaagtcaaaa nagcatagan aggaaagtt 1009

<210> 100  
 <211> 292



&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 100

Ala Asn Val Thr Tyr Ser Thr Thr Trp Ser Glu Ala Gln Gln Tyr Leu  
 1 5 10 15  
 Met Asp Asn Pro Thr Phe Ala Glu Asp Glu Glu Leu Gln Asn Met Asp  
 20 25 30  
 Lys Glu Asp Ala Leu Ile Cys Phe Glu Glu His Ile Arg Ala Leu Glu  
 35 40 45  
 Lys Glu Glu Glu Glu Glu Lys Gln Lys Ser Leu Leu Arg Glu Arg Arg  
 50 55 60  
 Arg Gln Arg Lys Asn Arg Glu Ser Phe Gln Ile Phe Leu Asp Glu Leu  
 65 70 75 80  
 His Glu His Gly Gln Leu His Ser Met Ser Ser Trp Met Glu Leu Tyr  
 85 90 95  
 Pro Thr Ile Ser Ser Asp Ile Arg Phe Thr Asn Met Leu Gly Gln Pro  
 100 105 110  
 Gly Ser Thr Ala Leu Asp Leu Phe Lys Phe Tyr Val Glu Asp Leu Lys  
 115 120 125  
 Ala Arg Tyr His Asp Glu Lys Lys Ile Ile Lys Asp Ile Leu Lys Asp  
 130 135 140  
 Lys Gly Phe Val Val Glu Val Asn Thr Thr Phe Glu Asp Phe Val Ala  
 145 150 155 160  
 Ile Ile Ser Ser Thr Lys Arg Ser Thr Thr Leu Asp Ala Gly Asn Ile  
 165 170 175  
 Lys Leu Ala Phe Asn Ser Leu Leu Glu Lys Ala Glu Ala Arg Glu Arg  
 180 185 190  
 Glu Arg Glu Lys Glu Glu Ala Arg Lys Met Lys Arg Lys Glu Ser Ala  
 195 200 205  
 Phe Lys Ser Met Leu Lys Gln Ala Ala Pro Pro Ile Glu Leu Asp Ala  
 210 215 220  
 Val Trp Glu Asp Ile Arg Glu Arg Phe Val Lys Glu Pro Ala Phe Glu  
 225 230 235 240  
 Asp Ile Thr Leu Glu Ser Glu Arg Lys Arg Ile Phe Lys Asp Phe Met  
 245 250 255  
 His Val Leu Glu His Glu Cys Gln His His His Ser Lys Asn Lys Lys  
 260 265 270  
 His Ser Lys Lys Ser Lys Lys His His Arg Lys Arg Ser Arg Ser Arg  
 275 280 285  
 Ser Gly Ser Asp  
 290

&lt;210&gt; 101

&lt;211&gt; 983

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 101

aggtgacaat agatatagaa gtacgttgat gtgcgaagat gtattttggt ttagccagcg 60  
 aggaaaaaag aatcagtttg attatacatt taccaaacat taagaattta atatggtaac 120  
 ttttatttca gtattaaaa agcaatttta tttattactt ttttatatat agaatttgac 180  
 accaaatttt ggaacttaaa aagaagattc ttaaaactta caatccagat tacgatgagg 240  
 acctggtgca ggaagcttca tctgaagatg tcctgggcgt tcatatggtg gacaaagaca 300  
 cagagagaga cattgagatg aaacggcaac tacggcgact acgggagctc cacctataca 360

```

gcacatggaa gaagtaccaa gaggcgatga agacatcctt gggagttcca caacgtgagc 420
gtgacgaagg ctcttgggc aagccattgt gtccaccgga gatactctcg gagacgttgc 480
caggctctgt gaagaaaagg gtatgctttc catcagaaga tcatctagag gagtttatag 540
cagaacatct ccctgaagca tccaatcaga gtctcctcac tgttgcccat gcagacgcag 600
gcacccaaac caacggtgac ctggaagacc tggaggagca tgggccaggg cagacagtct 660
ctgaggaagc cacagaagtt cacatgatgg agggggaccc agacacactg gccgaacttc 720
tgatcagga tgtacttcag gagctgtcca gttacaacgg cgaggaggag gacccanagg 780
aggtgaagac atccttgga gttccacaac gtggtgacct ggaagacctg gaggagcatg 840
tgncaggga gnnnttctct gaggaagcca caggggttca catgatgcag gtggaccag 900
ccacgctggc aaagagtgc ctggaagacc tggaggagca tgtgccagag cagacagtct 960
ctgaggaagc cacaggggtt cac 983

```

<210> 102  
 <211> 230  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 102
Met Val Asp Lys Asp Thr Glu Arg Asp Ile Glu Met Lys Arg Gln Leu
 1          5          10          15
Arg Arg Leu Arg Glu Leu His Leu Tyr Ser Thr Trp Lys Lys Tyr Gln
          20          25          30
Glu Ala Met Lys Thr Ser Leu Gly Val Pro Gln Arg Glu Arg Asp Glu
          35          40          45
Gly Ser Leu Gly Lys Pro Leu Cys Pro Pro Glu Ile Leu Ser Glu Thr
          50          55          60
Leu Pro Gly Ser Val Lys Lys Arg Val Cys Phe Pro Ser Glu Asp His
          65          70          75          80
Leu Glu Glu Phe Ile Ala Glu His Leu Pro Glu Ala Ser Asn Gln Ser
          85          90          95
Leu Leu Thr Val Ala His Ala Asp Ala Gly Thr Gln Thr Asn Gly Asp
          100          105          110
Leu Glu Asp Leu Glu Glu His Gly Pro Gly Gln Thr Val Ser Glu Glu
          115          120          125
Ala Thr Glu Val His Met Met Glu Gly Asp Pro Asp Thr Leu Ala Glu
          130          135          140
Leu Leu Ile Arg Asp Val Leu Gln Glu Leu Ser Ser Tyr Asn Gly Glu
          145          150          155          160
Glu Glu Asp Pro Glu Val Lys Thr Ser Leu Gly Val Pro Gln Arg Gly
          165          170          175
Asp Leu Glu Asp Leu Glu Glu His Val Gly Gln Phe Ser Glu Glu Ala
          180          185          190
Thr Gly Val His Met Met Gln Val Asp Pro Ala Thr Leu Ala Lys Ser
          195          200          205
Asp Leu Glu Asp Leu Glu Glu His Val Pro Glu Gln Thr Val Ser Glu
          210          215          220
Glu Ala Thr Gly Val His
          225          230

```

<210> 103  
 <211> 843  
 <212> DNA  
 <213> Homo Sapiens

<400> 103

```

aatncccgct gcaggtcgac actagtggat ccaaagaatt cggcacgagg caagtctctgg      60
gagctggaca cggaccacga cctgctcatc gacgcggacg acctggcgcg gcacaatgac      120
cacgcccttt ctaccaagat gatagacagg atcttctcag gagcagtcac acgaggcaga      180
aaagtgcaga aggaaggga gatcagctat gccgactttg tctggttttt gatctctgag      240
gaagacaaaa aaacaccgac cagcatcgag tactggttcc gctgcatgga cctggacggg      300
gacggcgccc tgtccatggt cgagctcgag tacttctacg aggagcagtg ccgaaggctg      360
gacagcatgg ccatcgaggc cctgcccttc caggactgcc tctgccagat gctggacctg      420
gtcaagccga ggactgaagg gaagatcacg ctgcaggacc tgaagcgctg caagctggcc      480
aacgtcttct tcgacacctt cttcaacatc gagaagtncc tcgaccacga gcagaaagag      540
cagatctccc tgctcaggga cggtgacagc ggcgggcccc agctctcgga ctgggagaag      600
tnccggccga agagtncgac atcctggtgg ccgangaac cgtggggana nccctgggga      660
agacgggttc naaggcgaac tcaccccnt ggancanaaa ctgantgcgc tgcgtcccc      720
gctgggcan aggccttctt ccaagcgct cccgctggg cgccgtggaa ctgttncaaa      780
ttccccgctg gggacaagaa cttgaaaccg ctgtganncc cccncnana accnccccg      840
gnt                                                                    843

```

<210> 104  
 <211> 197  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 104
Arg Cys Arg Ser Thr Leu Val Asp Pro Lys Asn Ser Ala Arg Gly Lys
 1          5          10          15
Phe Trp Glu Leu Asp Thr Asp His Asp Leu Leu Ile Asp Ala Asp Asp
 20          25          30
Leu Ala Arg His Asn Asp His Ala Leu Ser Thr Lys Met Ile Asp Arg
 35          40          45
Ile Phe Ser Gly Ala Val Thr Arg Gly Arg Lys Val Gln Lys Glu Gly
 50          55          60
Lys Ile Ser Tyr Ala Asp Phe Val Trp Phe Leu Ile Ser Glu Glu Asp
 65          70          75          80
Lys Lys Thr Pro Thr Ser Ile Glu Tyr Trp Phe Arg Cys Met Asp Leu
 85          90          95
Asp Gly Asp Gly Ala Leu Ser Met Phe Glu Leu Glu Tyr Phe Tyr Glu
100          105          110
Glu Gln Cys Arg Arg Leu Asp Ser Met Ala Ile Glu Ala Leu Pro Phe
115          120          125
Gln Asp Cys Leu Cys Gln Met Leu Asp Leu Val Lys Pro Arg Thr Glu
130          135          140
Gly Lys Ile Thr Leu Gln Asp Leu Lys Arg Cys Lys Leu Ala Asn Val
145          150          155          160
Phe Phe Asp Thr Phe Phe Asn Ile Glu Lys Leu Asp His Glu Gln Lys
165          170          175
Glu Gln Ile Ser Leu Leu Arg Asp Gly Asp Ser Gly Gly Pro Glu Leu
180          185          190
Ser Asp Trp Glu Lys
195

```

<210> 105  
 <211> 2264  
 <212> DNA  
 <213> Homo Sapiens

<400> 105

```

ctagcacaag tacacaggcc ccagccgctt cccctactgg ttagttcct ggtaccaa 60
atgcagtacc tgacacgtcc acttaccagt atgatgaatc ttcaggatat tactatgatc 120
cgacaacagg gctctattat gaccccaact cgcaatacta ctataattcc ttgaccagc 180
agtaccttta ctgggatggg gaaaaagaga cctacgtgcc agctgcagag tctagctccc 240
accagcagtc gggcctgcct cctgcaaaaag aggggaaaga gaagaaggag aaaccaaga 300
gcaaaacagc ccagcagatt gccaaagaca tggaacgctg ggctaagagt ttgaataagc 360
agaaagaaaa ctttaaaaat agctttcagc ctgtcaattc cttgagggaa gaagaaagga 420
gagaatctgc tgcagcagac gctggctttg ctctctttga gaagaaggga gccttagctg 480
aaaggcagca gctcatccca gaattgggtg gaaatggaga tgaggagaat cccctcaaaa 540
ggggtctggg tgctgcttac agtggtgaca gtgacaatga ggaggagctg gtggagagac 600
ttgagagtga ggaagagaag cttagctgact ggaagaagat ggctgtctg ctctgccggc 660
gccagttccc gaacaaagat gccctagtca ggcaccagca actctcagac cttcacaagc 720
aaaaatgga catctaccga cgatccaggg tgagcgagca ggagctggaa gccttgagagc 780
taaggagagag agagatgaaa taccgagacc gagctgcaga aagacgggag aagtagggca 840
ttccagaacc tccagagccc aagcgcaaga agcagtttga tgccggcact gtgaattacg 900
agcaaccac caaagatggc attgaccaca gtaacattgg caacaagatg ctgcaggcca 960
tgggctggcg ggaaggctct ggcttgggac gaaagtgtca aggcattacg gctcccattg 1020
aggctcaagt tcggctaaag ggagctggcc taggagccaa aggcagcgca tatggtttgt 1080
cgggcgcca ttcctacaaa gatgctgtcc ggaaagccat gtttgcggg ttcactgaga 1140
tggagtgaga gagagagaga gagagagatg acaaggagca caagaagtgg tccatctccc 1200
gaattcgctg ttaccgctg tctctttaag ggcctgcctt gtgctgttaa tagatcttag 1260
ggtgaaccac ttcattctgc agggttctcc ctcccacctt aaagaagttc cccttatgtg 1320
ggttgccctg tgaatggcct tccttcccgc cagagggcct gtgaacagac cggagaggac 1380
agtggattgt ttatactcca gtgtacatag tgtaatgtag cgtgtttaca tgtgtagcct 1440
atgttgtggg ccatcagccc ctccattcc taggggtttg agatgctgta ggtggtatgt 1500
gacaccaaag ccacctctgt catttgttgt gatgtctttt cttggcaaaa gccttgtgta 1560
tattgtata ttacacattt gtacagaatt ttggaagatt ttcaatccaa gttgccaaat 1620
ctggctcctt tacaaaagaa ataccttgag aaaaaaann aannaaaaaa aannccnann 1680
nnntttttaa aanggnncgg gggccaannn ttttcnncg gggngggna nnaagtaaan 1740
ngtcccaaat nccccaaaa nggagcccn ttaaaattaa angggccgn nttttaaaan 1800
nttcngaata gggnaaaccc tnggggttn ccaaattaa ccccttgaa aaaaaanccc 1860
ctttcncaaa annggntaa tanccaaaaa gggcccccann cttttttgc cnttccaaa 1920
aaaatttgnc caanncnnaa atgggnaaan ggggaatcca attttttaaa gggnnaaaan 1980
gggtttaaac nnacgggntt ccaaaantgn ttgggggaat ttttaaattc ccaannnccc 2040
aaggggggna atttagnggn cccnaatcc cccaaaaant ggctcnnggn tnaaancngc 2100
cnnnnccnaa tttntanggg tttacttngn tttaaaaaac ccnccccaaa actccccenn 2160
gaaccnaaaa aanaaaagga ngccattttt ngngnnaaac ttttttaann nncnnttaa 2220
angggttaaa aaannnnnnn tnncccnnaa tttttcaaan aang 2264

```

&lt;210&gt; 106

&lt;211&gt; 381

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 106

```

Ser Thr Ser Thr Gln Ala Pro Ala Ala Ser Pro Thr Gly Val Val Pro
1          5          10          15
Gly Thr Lys Tyr Ala Val Pro Asp Thr Ser Thr Tyr Gln Tyr Asp Glu
20          25          30
Ser Ser Gly Tyr Tyr Tyr Asp Pro Thr Thr Gly Leu Tyr Tyr Asp Pro
35          40          45
Asn Ser Gln Tyr Tyr Tyr Asn Ser Leu Thr Gln Gln Tyr Leu Tyr Trp
50          55          60
Asp Gly Glu Lys Glu Thr Tyr Val Pro Ala Ala Glu Ser Ser Ser His
65          70          75          80

```

Gln Gln Ser Gly Leu Pro Pro Ala Lys Glu Gly Lys Glu Lys Lys Glu  
 85 90 95  
 Lys Pro Lys Ser Lys Thr Ala Gln Gln Ile Ala Lys Asp Met Glu Arg  
 100 105 110  
 Trp Ala Lys Ser Leu Asn Lys Gln Lys Glu Asn Phe Lys Asn Ser Phe  
 115 120 125  
 Gln Pro Val Asn Ser Leu Arg Glu Glu Glu Arg Arg Glu Ser Ala Ala  
 130 135 140  
 Ala Asp Ala Gly Phe Ala Leu Phe Glu Lys Lys Gly Ala Leu Ala Glu  
 145 150 155 160  
 Arg Gln Gln Leu Ile Pro Glu Leu Val Arg Asn Gly Asp Glu Glu Asn  
 165 170 175  
 Pro Leu Lys Arg Gly Leu Val Ala Ala Tyr Ser Gly Asp Ser Asp Asn  
 180 185 190  
 Glu Glu Glu Leu Val Glu Arg Leu Glu Ser Glu Glu Glu Lys Leu Ala  
 195 200 205  
 Asp Trp Lys Lys Met Ala Cys Leu Leu Cys Arg Arg Gln Phe Pro Asn  
 210 215 220  
 Lys Asp Ala Leu Val Arg His Gln Gln Leu Ser Asp Leu His Lys Gln  
 225 230 235 240  
 Asn Met Asp Ile Tyr Arg Arg Ser Arg Leu Ser Glu Gln Glu Leu Glu  
 245 250 255  
 Ala Leu Glu Leu Arg Glu Arg Glu Met Lys Tyr Arg Asp Arg Ala Ala  
 260 265 270  
 Glu Arg Arg Glu Lys Tyr Gly Ile Pro Glu Pro Pro Glu Pro Lys Arg  
 275 280 285  
 Lys Lys Gln Phe Asp Ala Gly Thr Val Asn Tyr Glu Gln Pro Thr Lys  
 290 295 300  
 Asp Gly Ile Asp His Ser Asn Ile Gly Asn Lys Met Leu Gln Ala Met  
 305 310 315 320  
 Gly Trp Arg Glu Gly Ser Gly Leu Gly Arg Lys Cys Gln Gly Ile Thr  
 325 330 335  
 Ala Pro Ile Glu Ala Gln Val Arg Leu Lys Gly Ala Gly Leu Gly Ala  
 340 345 350  
 Lys Gly Ser Ala Tyr Gly Leu Ser Gly Ala Asp Ser Tyr Lys Asp Ala  
 355 360 365  
 Val Arg Lys Ala Met Phe Ala Arg Phe Thr Glu Met Glu  
 370 375 380

&lt;210&gt; 107

&lt;211&gt; 1367

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 107

gcgacacagg cctcgaggct gtctctgaca agtgttcaca ggaggtgggg acgcctctgc	60
gcgaggaacg aggagctacg ggcctgggcc cggttattgc catgggcagc ggctgccgca	120
tgaatgcat attcttcagc gagttccacc ccacgctggg acccaagatc acctatcagg	180
tccctgaaga cttcatctcc cgagagctgt ttgacacagt ccaagtgtac atcatcacca	240
agccagagct gcagaacaag cttatcactg tcacagctat ggaaaagaag ctgatcggct	300
gtcctgtgtg catcgaacac aagaagtaca gccgcaatgc tctcctcttc aacctgggct	360
tcgtgtgtga tgcccaggcc aagacctgcg ccctcgagcc cattgttaaa aagctggctg	420
gctatctgac cacactagag ctagagagca gcttcgtgtc catggaggag agcaagcaga	480
agttggtgcc catcatgacc atcttgctgg aggagctaaa tgcctcaggc cgggtgcactc	540
tgccattga tgagtccaac accatccact tgaaggtgat tgagcagcgg ccagaccctc	600

```

cggtggccca ggagtatgat gtacctgtct ttaccaaaga caaggaggat ttcttcaact    660
cacagtggga cctcactaca caacaaatcc tgcctacat tgatgggttc cgccacatcc    720
agaagatttc agcagaggca gatgtggagc tcaacctggg gcgcattgct atccagaacc    780
tgctgtacta cggcggttggtg acactggtgt ccatcctcca gtactccaat gtatactgcc    840
caacgcccac ggtccaggac ctggtagatg acaagtcctt gcaagaggca tgtctatcct    900
acgtgaccaa gcaagggcac aagagggcca gtctccggga tgtgttccag ctatactgca    960
gcctgagccc tggcactacc gtgcgagacc tcattggccg ccacccccag cagctgcagc   1020
atgttgatga acggaagctg atccagttcg ggcttatgaa gaacctcatc aggcgactac   1080
agaagtatcc tgtgcgggtg actcgggaag agcagagcca ccctgcccgg ctttatacac   1140
gctgccacag ctatgacgag atctgctgca agacaggcat gagctaccat gagctggatg   1200
agcggcttga aaatgacccc aacatcatca tctgctggaa gtgaggctgg tagtgactgg   1260
atggacacat tgctgtgggt agtccctcct actaggaggc ttgtcatact gtctagaggt   1320
tgactcttag ttctgtaaat aaagacatcc atttcaaaca gccaaaaa                1367

```

&lt;210&gt; 108

&lt;211&gt; 413

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 108

```

Asp Thr Gly Leu Glu Ala Val Ser Asp Lys Cys Ser Gln Glu Val Gly
 1          5          10          15
Thr Pro Leu Arg Glu Glu Arg Gly Ala Thr Gly Leu Gly Pro Val Ile
          20          25          30
Ala Met Gly Ser Gly Cys Arg Ile Glu Cys Ile Phe Phe Ser Glu Phe
          35          40          45
His Pro Thr Leu Gly Pro Lys Ile Thr Tyr Gln Val Pro Glu Asp Phe
          50          55          60
Ile Ser Arg Glu Leu Phe Asp Thr Val Gln Val Tyr Ile Ile Thr Lys
65          70          75          80
Pro Glu Leu Gln Asn Lys Leu Ile Thr Val Thr Ala Met Glu Lys Lys
          85          90          95
Leu Ile Gly Cys Pro Val Cys Ile Glu His Lys Lys Tyr Ser Arg Asn
          100          105          110
Ala Leu Leu Phe Asn Leu Gly Phe Val Cys Asp Ala Gln Ala Lys Thr
          115          120          125
Cys Ala Leu Glu Pro Ile Val Lys Lys Leu Ala Gly Tyr Leu Thr Thr
          130          135          140
Leu Glu Leu Glu Ser Ser Phe Val Ser Met Glu Glu Ser Lys Gln Lys
145          150          155          160
Leu Val Pro Ile Met Thr Ile Leu Leu Glu Glu Leu Asn Ala Ser Gly
          165          170          175
Arg Cys Thr Leu Pro Ile Asp Glu Ser Asn Thr Ile His Leu Lys Val
          180          185          190
Ile Glu Gln Arg Pro Asp Pro Pro Val Ala Gln Glu Tyr Asp Val Pro
          195          200          205
Val Phe Thr Lys Asp Lys Glu Asp Phe Phe Asn Ser Gln Trp Asp Leu
          210          215          220
Thr Thr Gln Gln Ile Leu Pro Tyr Ile Asp Gly Phe Arg His Ile Gln
225          230          235          240
Lys Ile Ser Ala Glu Ala Asp Val Glu Leu Asn Leu Val Arg Ile Ala
          245          250          255
Ile Gln Asn Leu Leu Tyr Tyr Gly Val Val Thr Leu Val Ser Ile Leu
          260          265          270
Gln Tyr Ser Asn Val Tyr Cys Pro Thr Pro Lys Val Gln Asp Leu Val

```

275                      280                      285  
 Asp Asp Lys Ser Leu Gln Glu Ala Cys Leu Ser Tyr Val Thr Lys Gln  
 290                      295                      300  
 Gly His Lys Arg Ala Ser Leu Arg Asp Val Phe Gln Leu Tyr Cys Ser  
 305                      310                      315                      320  
 Leu Ser Pro Gly Thr Thr Val Arg Asp Leu Ile Gly Arg His Pro Gln  
 325                      330                      335  
 Gln Leu Gln His Val Asp Glu Arg Lys Leu Ile Gln Phe Gly Leu Met  
 340                      345                      350  
 Lys Asn Leu Ile Arg Arg Leu Gln Lys Tyr Pro Val Arg Val Thr Arg  
 355                      360                      365  
 Glu Glu Gln Ser His Pro Ala Arg Leu Tyr Thr Gly Cys His Ser Tyr  
 370                      375                      380  
 Asp Glu Ile Cys Cys Lys Thr Gly Met Ser Tyr His Glu Leu Asp Glu  
 385                      390                      395                      400  
 Arg Leu Glu Asn Asp Pro Asn Ile Ile Ile Cys Trp Lys  
 405                      410

<210> 109  
 <211> 2113  
 <212> DNA  
 <213> Homo Sapiens

<400> 109  
 gtgcgggttg gaacgcggag cggacggatt cgattcaacg gggttccgga ccgcgctgcg 60  
 ctatggagca ggtcaatgag ctgaaggaga aaggcaacaa ggccctgagc gtgggtaaca 120  
 tcgatgatgc cttacagtgc tactccgaag ctattaagct ggatccccac aaccacgtgc 180  
 tgtacagcaa cegttctgct gcctatgcc aaaaaggaga ctaccagaag gcttatgagg 240  
 atggctgcaa gactgtcgac ctaaagcctg actggggcaa gggctattca cgaagacag 300  
 cagctctaga gttcttaaac cgctttgaag aagccaagcg aacctatgag gagggtctaa 360  
 aacacgaggc aaataaccct caactgaaag aggggtttaca gaatatggag gccagggttg 420  
 cagagagaaa attcatgaac cctttcaaca tgcctaactc gtatcagaag ttggagagtg 480  
 atcccaggac aaggacacta ctcagtgatc ctacctaccg ggagctgata gagcagctac 540  
 gaaacaagcc ttctgacctg ggcacgaaac tacaagatcc ccgatcatg accactctca 600  
 gcgtctcctc tggggctgat ctgggcagta tggatgagga ggaagagatt gcaacacctc 660  
 caccaccacc ccctcccaaa aaggagacca agccagagcc aatggaagaa gatcttccag 720  
 agaataagaa gcaggcactg aaagaaaaag agctggggaa cgatgcctac aagaagaaag 780  
 actttgacac agccttgaag cattacgaca aagccaagga gctggacccc actaacatga 840  
 cttacattac caatcaagca gcggtatact ttgaaaagg cgactacaat aagtgccggg 900  
 agctttgtga gaaggccatt gaagtgggga gagaaaaccg agaagactat cgacagattg 960  
 ccaaagcata tgctcgaatt ggcaactcct acttcaaaga agaaaagtac aaggatgcca 1020  
 tccatttcta taacaagtct ctggcagagc accgaacccc agatgtgctc aagaaatgcc 1080  
 agcaggcaga gaaaatcctg aaggagcaag agcggtggc ctacataaac cccgacctgg 1140  
 ctttgaggga gaagaacaaa ggcaacgagt gttttcagaa aggggactat cccaggcca 1200  
 tgaagcatta tacagaagcc atcaaaagga acccgaaaga tgccaaatta tacagcaatc 1260  
 gagctgctg ctacaccaa ctcctggagt tccagctggc actcaaggac tgtgaggaat 1320  
 gtatccagct ggagccgacc ttcataagg gttatcacg gaaagccgct gcgctggaag 1380  
 cgatgaagga ctacaccaa gccatggatg tgtaccagaa ggcgctagac ctggactcca 1440  
 gctgtaagga ggcggcagac ggctaccagc gctgtatgat ggcgcagtac aaccggcacg 1500  
 acagccccga agatgtgaag cgacgagcca tggccgaccc tgaggtgcag cagatcatga 1560  
 gtgacccagc catgcgctt atcctggaac agatgcagaa ggacccccag gcaactcagc 1620  
 aacacttaaa gaatcctgta atagcacaga agatccagaa gctgatggat gtgggtctga 1680  
 ttgcaattcg gtgatgactt gttcatcccc ccttcccttc gccctcatgt ggaaagagga 1740  
 gctgggaccg cggcgagcag cagggagcgg aaggagagc aggggagaga aggcctcatc 1800  
 tctctatatt tatacataac cccggggaag acacagagac tcgtacctgc gctgtttgtg 1860

```

ccgccgctgc ctctggggccc tcccagcaca cgcattggtct cttcacccgct gccctcgagt 1920
tccatgtctc tttccctgc cctagttgc tgtctcggt gctctcccat agttggtttt 1980
ttttttattt ggggcagtgg gcatgttatg gggaggagg ggggttcttc cagcctcagg 2040
tcccagctgt ctcacgttgt ttattctgcg tccccttctc caataaaaca agccagttgg 2100
gcgtggttat aac 2113

```

&lt;210&gt; 110

&lt;211&gt; 543

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 110

```

Met Glu Gln Val Asn Glu Leu Lys Glu Lys Gly Asn Lys Ala Leu Ser
 1           5           10           15
Val Gly Asn Ile Asp Asp Ala Leu Gln Cys Tyr Ser Glu Ala Ile Lys
      20           25           30
Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala Tyr
      35           40           45
Ala Lys Lys Gly Asp Tyr Gln Lys Ala Tyr Glu Asp Gly Cys Lys Thr
      50           55           60
Val Asp Leu Lys Pro Asp Trp Gly Lys Gly Tyr Ser Arg Lys Ala Ala
      65           70           75           80
Ala Leu Glu Phe Leu Asn Arg Phe Glu Glu Ala Lys Arg Thr Tyr Glu
      85           90           95
Glu Gly Leu Lys His Glu Ala Asn Asn Pro Gln Leu Lys Glu Gly Leu
      100          105          110
Gln Asn Met Glu Ala Arg Leu Ala Glu Arg Lys Phe Met Asn Pro Phe
      115          120          125
Asn Met Pro Asn Leu Tyr Gln Lys Leu Glu Ser Asp Pro Arg Thr Arg
      130          135          140
Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu Arg
      145          150          155          160
Asn Lys Pro Ser Asp Leu Gly Thr Lys Leu Gln Asp Pro Arg Ile Met
      165          170          175
Thr Thr Leu Ser Val Leu Leu Gly Val Asp Leu Gly Ser Met Asp Glu
      180          185          190
Glu Glu Glu Ile Ala Thr Pro Pro Pro Pro Pro Pro Lys Lys Glu
      195          200          205
Thr Lys Pro Glu Pro Met Glu Glu Asp Leu Pro Glu Asn Lys Lys Gln
      210          215          220
Ala Leu Lys Glu Lys Glu Leu Gly Asn Asp Ala Tyr Lys Lys Lys Asp
      225          230          235          240
Phe Asp Thr Ala Leu Lys His Tyr Asp Lys Ala Lys Glu Leu Asp Pro
      245          250          255
Thr Asn Met Thr Tyr Ile Thr Asn Gln Ala Ala Val Tyr Phe Glu Lys
      260          265          270
Gly Asp Tyr Asn Lys Cys Arg Glu Leu Cys Glu Lys Ala Ile Glu Val
      275          280          285
Gly Arg Glu Asn Arg Glu Asp Tyr Arg Gln Ile Ala Lys Ala Tyr Ala
      290          295          300
Arg Ile Gly Asn Ser Tyr Phe Lys Glu Glu Lys Tyr Lys Asp Ala Ile
      305          310          315          320
His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val Leu
      325          330          335
Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg Leu

```



340 345 350  
 Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly Asn  
 355 360 365  
 Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr Thr  
 370 375 380  
 Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn Arg  
 385 390 395 400  
 Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys Asp  
 405 410 415  
 Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr Thr  
 420 425 430  
 Arg Lys Ala Ala Ala Leu Glu Ala Met Lys Asp Tyr Thr Lys Ala Met  
 435 440 445  
 Asp Val Tyr Gln Lys Ala Leu Asp Leu Asp Ser Ser Cys Lys Glu Ala  
 450 455 460  
 Ala Asp Gly Tyr Gln Arg Cys Met Met Ala Gln Tyr Asn Arg His Asp  
 465 470 475 480  
 Ser Pro Glu Asp Val Lys Arg Arg Ala Met Ala Asp Pro Glu Val Gln  
 485 490 495  
 Gln Ile Met Ser Asp Pro Ala Met Arg Leu Ile Leu Glu Gln Met Gln  
 500 505 510  
 Lys Asp Pro Gln Ala Leu Ser Glu His Leu Lys Asn Pro Val Ile Ala  
 515 520 525  
 Gln Lys Ile Gln Lys Leu Met Asp Val Gly Leu Ile Ala Ile Arg  
 530 535 540

&lt;210&gt; 111

&lt;211&gt; 2765

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 111

gggtgctgac tgacaagcgg ctctgcccgg gaccttctcg ctttcatcta gcgctgcact 60  
 caatggaggg gcgggcaccg cagtgcctaa tgctgtctta actagtgtag gaaaacggct 120  
 caaccaccg ctgccgaaat gaagtataag aatcttatgg caagggcctt atatgacaat 180  
 gtcccagagt gtgccgagga actggccttt cgcaagggag acatcctgac cgtcatagag 240  
 cagaacacag ggggactgga aggatgggtg ctgtgctcgt tacacggctcg gcaaggcatt 300  
 gtcccaggca accgggtgaa gcttctgatt ggtcccatgc aggagactgc ctccagtcac 360  
 gagcagcctg cctctggact gatgcagcag acctttggcc aacagaagct ctatcaagtg 420  
 ccaaaccac aggctgctcc ccgagacacc atctaccaag tgccacctc ctacccaaat 480  
 caggggaattt accaagtccc cactggccac ggcacccaag aacaagaggt atatcagggtg 540  
 ccaccatcag tgcagagaag cattggggga accagtgggc cccacgtggg taaaaagggtg 600  
 ataaccctcg tgaggacagg ccatggctac gtatacagat acccatccag ataccaaaag 660  
 gatgtctatg atatccctcc ttctcatacc actcaagggg tatacgacat cctccctca 720  
 tcagcaaaaag gccctgtgtt ttctagttcca gtgggagaga taaaacctca aggggtgtat 780  
 gacatccgc ctacaaaagg ggtatatgcc attccgcct ctgcttgccg ggatgaagca 840  
 gggcttaggg aaaaagacta tgacttcccc cctcccatga gacaagctgg aaggccggac 900  
 ctcagaccgg aggggttcta tgacattcct ccaacctgca ccaagccagc aggggaaggac 960  
 cttcatgtaa aatacaactg tgacattcca ggagctgcag aaccggtggc tcgaaggcac 1020  
 cagagcctgt ccccgaaatca cccaccccg caactcggac agtcagtggg ctctcagaac 1080  
 gagcatatg atgtcccccg aggcgttcag tttcttgagc caccagcaga aaccagttag 1140  
 aaagcaaac cccaggaaag ggtatgtgtt tatgatgtcc ctctgcataa cccgccagat 1200  
 gctaaaggct ctccggactt ggtggatggg atcaaccgat tgtctttctc cagtacaggc 1260  
 agcaccggga gtaacatgtc cacgtcttcc acctctcca aggagtctc actgtcagcc 1320  
 tcccagctc aggacaaaag gctcttcctg gatccagaca cagctattga gagacttcag 1380

```

cggtccagc aggcccttga gatgggtgtc tccagcctaa tggcactggt cactaccgac 1440
tggcggtgtt acggatataat ggaaagacac atcaatgaaa tacgcacagc agtggacaag 1500
gtggagctgt tcttgaagga gtacctccac tttgtcaagg gagctgttgc aaatgctgcc 1560
tgcctcccgg aactcatcct ccacaacaag atgaagcggg agctgcaacg agtcgaagac 1620
tcccaccaga tcttgagtca aaccagccat gacttaaagt agtgacagctg gtccctgaat 1680
atcttggcca tcaacaagcc ccagaacaag tgtgacgac tggaccggtt tgtgatggtg 1740
gcaaagacgg tgcccgatga cgccaagcag ctccaccaca ccatcaacac caacgcagag 1800
gccctcttca gacccggccc tggcagcttg catctgaaga atgggcccga gagcatcatg 1860
aactcaacgg agtaccacaa cgggtggctcc cagggacagc tgctgcatcc tggtgaccac 1920
aaggcccagg ccacacaaca ggcaactgcc ccaggcctga gcaaggagca ggcccctgac 1980
tgtagcagca gtgatggttc tgagaggagc tggatggatg actacgatta cgtccaccta 2040
cagggttaagg aggagtttga gaggcaacag aaagagctat tggaaaaaga gaatatcatg 2100
aaacagaaca agatgcagct ggaacatcat cagctgagcc agttccagct gttggaacaa 2160
gagattacaa agcccgtgga gaatgacatc tcgaagtgga agccctctca gagcctaccc 2220
accacaaaca gtggcggtgag tgctcaggat cggcagttgc tgtgcttcta ctatgaccaa 2280
tgtgagaccc atttcatttc ctttctcaac gccattgacg cactcttcag ttgtgtcagc 2340
tcagcccagc ccccggaat cttcgtggca cacagcaagt ttgtcatcct cagtgcacac 2400
aaactggtgt tcattggaga cagctgaca cggcagggtga ctgccaggga cattcgcaac 2460
aaagtcatga actccagcaa ccagctctgc gagcagctca agactatagt catggcaacc 2520
aagatggccg ccttccatta cccagcacc acggccctgc aggaaatggt gcaccaagtg 2580
acagaccttt ctgaaaatgc ccagctgttc aagcgtcttt tgctggagat ggcaacgttc 2640
tgagaagaaa aaaaagagga aggggactgc gttaacggtt actaaggaaa actggaaata 2700
ctgtctggtt tttgtaaagt ttatctattt ttgtagatat tttatataaa aatgaaatat 2760
tttcc

```

&lt;210&gt; 112

&lt;211&gt; 834

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 112

```

Met Lys Tyr Lys Asn Leu Met Ala Arg Ala Leu Tyr Asp Asn Val Pro
 1             5             10             15
Glu Cys Ala Glu Glu Leu Ala Phe Arg Lys Gly Asp Ile Leu Thr Val
          20             25             30
Ile Glu Gln Asn Thr Gly Gly Leu Glu Gly Trp Trp Leu Cys Ser Leu
      35             40             45
His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Val Lys Leu Leu Ile
    50             55             60
Gly Pro Met Gln Glu Thr Ala Ser Ser His Glu Gln Pro Ala Ser Gly
65             70             75             80
Leu Met Gln Gln Thr Phe Gly Gln Gln Lys Leu Tyr Gln Val Pro Asn
          85             90             95
Pro Gln Ala Ala Pro Arg Asp Thr Ile Tyr Gln Val Pro Pro Ser Tyr
          100             105             110
Gln Asn Gln Gly Ile Tyr Gln Val Pro Thr Gly His Gly Thr Gln Glu
      115             120             125
Gln Glu Val Tyr Gln Val Pro Ser Val Gln Arg Ser Ile Gly Gly
    130             135             140
Thr Ser Gly Pro His Val Gly Lys Lys Val Ile Thr Pro Val Arg Thr
145             150             155             160
Gly His Gly Tyr Val Tyr Glu Tyr Pro Ser Arg Tyr Gln Lys Asp Val
          165             170             175
Tyr Asp Ile Pro Pro Ser His Thr Thr Gln Gly Val Tyr Asp Ile Pro
      180             185             190

```

Pro Ser Ser Ala Lys Gly Pro Val Phe Ser Val Pro Val Gly Glu Ile  
 195 200 205  
 Lys Pro Gln Gly Val Tyr Asp Ile Pro Pro Thr Lys Gly Val Tyr Ala  
 210 215 220  
 Ile Pro Pro Ser Ala Cys Arg Asp Glu Ala Gly Leu Arg Glu Lys Asp  
 225 230 235 240  
 Tyr Asp Phe Pro Pro Met Arg Gln Ala Gly Arg Pro Asp Leu Arg  
 245 250 255  
 Pro Glu Gly Val Tyr Asp Ile Pro Pro Thr Cys Thr Lys Pro Ala Gly  
 260 265 270  
 Lys Asp Leu His Val Lys Tyr Asn Cys Asp Ile Pro Gly Ala Ala Glu  
 275 280 285  
 Pro Val Ala Arg Arg His Gln Ser Leu Ser Pro Asn His Pro Pro Pro  
 290 295 300  
 Gln Leu Gly Gln Ser Val Gly Ser Gln Asn Asp Ala Tyr Asp Val Pro  
 305 310 315 320  
 Arg Gly Val Gln Phe Leu Glu Pro Pro Ala Glu Thr Ser Glu Lys Ala  
 325 330 335  
 Asn Pro Gln Glu Arg Asp Gly Val Tyr Asp Val Pro Leu His Asn Pro  
 340 345 350  
 Pro Asp Ala Lys Gly Ser Arg Asp Leu Val Asp Gly Ile Asn Arg Leu  
 355 360 365  
 Ser Phe Ser Ser Thr Gly Ser Thr Arg Ser Asn Met Ser Thr Ser Ser  
 370 375 380  
 Thr Ser Ser Lys Glu Ser Ser Leu Ser Ala Ser Pro Ala Gln Asp Lys  
 385 390 395 400  
 Arg Leu Phe Leu Asp Pro Asp Thr Ala Ile Glu Arg Leu Gln Arg Leu  
 405 410 415  
 Gln Gln Ala Leu Glu Met Gly Val Ser Ser Leu Met Ala Leu Val Thr  
 420 425 430  
 Thr Asp Trp Arg Cys Tyr Gly Tyr Met Glu Arg His Ile Asn Glu Ile  
 435 440 445  
 Arg Thr Ala Val Asp Lys Val Glu Leu Phe Leu Lys Glu Tyr Leu His  
 450 455 460  
 Phe Val Lys Gly Ala Val Ala Asn Ala Ala Cys Leu Pro Glu Leu Ile  
 465 470 475 480  
 Leu His Asn Lys Met Lys Arg Glu Leu Gln Arg Val Glu Asp Ser His  
 485 490 495  
 Gln Ile Leu Ser Gln Thr Ser His Asp Leu Asn Glu Cys Ser Trp Ser  
 500 505 510  
 Leu Asn Ile Leu Ala Ile Asn Lys Pro Gln Asn Lys Cys Asp Asp Leu  
 515 520 525  
 Asp Arg Phe Val Met Val Ala Lys Thr Val Pro Asp Asp Ala Lys Gln  
 530 535 540  
 Leu Thr Thr Thr Ile Asn Thr Asn Ala Glu Ala Leu Phe Arg Pro Gly  
 545 550 555 560  
 Pro Gly Ser Leu His Leu Lys Asn Gly Pro Glu Ser Ile Met Asn Ser  
 565 570 575  
 Thr Glu Tyr Pro His Gly Gly Ser Gln Gly Gln Leu Leu His Pro Gly  
 580 585 590  
 Asp His Lys Ala Gln Ala His Asn Lys Ala Leu Pro Pro Gly Leu Ser  
 595 600 605  
 Lys Glu Gln Ala Pro Asp Cys Ser Ser Ser Asp Gly Ser Glu Arg Ser  
 610 615 620  
 Trp Met Asp Asp Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu Phe

```
<210> 113
<211> 3429
<212> DNA
<213> Homo Sapiens
```

-80-

```

gttcactttt tggattgat tgaagctgca aagaatggaa atgagaaaga agttaaggag 1320
tatgcccagg ttttccgtga acatgccaac aaattgattg aggttgccaa cttggcctgt 1380
tccatctcaa ataatagaaga aggtgtaaag cttgttcgaa tgtctgcaag ccagttagaa 1440
gccctctgtc ctcagggttat taatgctgca ctggcttttag cagcaaaacc acagagtaaa 1500
ctggcccagg agaacatgga tctttttaaa gaacaatggg aaaaacaagt cctgtgtctc 1560
acagatgctg tcgatgacat tacttccatt gatgacttct tggctgtctc agagaatcac 1620
attttggaag atgtgaacaa atgtgtcatt gctctccaag agaaggatgt ggatggcctg 1680
gaccgcacag ctggtgcaat tcgaggccgg gcagcccggt tcattcacgt agtcacctca 1740
gagatggaca actatgagcc aggagtctac acagagaagg ttctggaagc cactaagctg 1800
ctctccaaca cagtcatgcc acgttttact gagcaagtag aagcagccgt ggaagccctc 1860
agctcggacc ctgccagcc catggatgag aatgagttta tcgatgcttc ccgctggta 1920
tatgatggca tccgggacat caggaaagca gtgctgatga taaggacccc tgaggagtgtg 1980
gatgactctg actttgagac agaagatttt gatgtcagaa gcaggacgag cgtccagaca 2040
gaagacgatc agctgatagc tggccagagt gccggggcga tcatggctca gcttccccag 2100
gagcaaaaag cgaagattgc ggaacagggt gccagcttcc aggaagaaaa gagcaagctg 2160
gatgctgaag tgtccaaatg ggacgacagt ggcaatgaca tcattgtgct ggccaagcag 2220
atgtgcata ttagatgga gatgacagac ttaccgcgag gtaaggacc actcaaaaat 2280
acatcgcatg tcacagtgc tgccaagaaa attgctgagg caggatccag gatggacaag 2340
cttggccgca ccattgcaga ccattgcccc gactcggctt gcaagcagga cctgctggcc 2400
tacctgcaac gcatcgccct ctactgccac cagctgaaca tctgcagcaa ggtcaaggcc 2460
gaggtgcaga atctcggcgg ggagcttggt gtctctgggg tggacagcgc catgtccctg 2520
atccaggcag ccaagaactt gatgaatgct gtggtgcaga cagtgaaggc atcctacgtc 2580
gcctctacca aatacaaaaa gtcacagggt atggcttccc tcaaccttcc tgcgtgtgtca 2640
tggaagatga aggcaccaga gaaaaagcca ttggtgaaga gagagaaaca ggatgagaca 2700
cagaccaaga ttaaacgggc atctcagaag aagcacgtga acccggtgca ggccctcagc 2760
gagttcaaag ctatggacag catctaagtc tgcccaggcc ggccgcccc acccctcggg 2820
gctcctgaat atcagtcact gtctgtcact caaatgaatt tgctaaatc aacactgata 2880
ctagattcca cagggaatg ggcagactga accagtccag gtggtgaatt ttccaagaac 2940
atagtttaag ttgattaaaa atgcttttag aatgcaggag cctacttcta gctgtatttt 3000
ttgtatgctt aaataaaaaa aaaaattcat aaccaagag aatcccacat tagcttgta 3060
gtaatgctct gaccaagccg agatgccc atctcttagt atggcgcgct tagggtttga 3120
gagaagggaa tttggctcaa cttcagttga gaggtgagc tccagacagc ttgactgctt 3180
ttaaatagacc aaagatgacc tgtggtaagc aacctgggca tcttagaagc agtccttgga 3240
gaaggcatgt tcccagaaag gtctctggag ggacaaactc actcagtaaa acataatgta 3300
tcatcatgaa gaaaactgat tctctatgac atgaaatgaa aattttaatg cattgttata 3360
attactaatg tacgtgtgtg caggacatta ataaagttgc ttttttaggc tacagtgtct 3420
cgatgccat 3429

```

&lt;210&gt; 114

&lt;211&gt; 906

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 114

```

Met Thr Ala Val His Ala Gly Asn Ile Asn Phe Lys Trp Asp Pro Lys
1           5           10           15
Ser Leu Glu Ile Arg Thr Leu Ala Val Glu Arg Leu Leu Glu Pro Leu
20           25           30
Val Thr Gln Val Thr Thr Leu Val Asn Thr Asn Ser Lys Gly Pro Ser
35           40           45
Asn Lys Lys Arg Gly Arg Ser Lys Lys Ala His Val Leu Ala Ala Ser
50           55           60
Val Glu Gln Ala Thr Glu Asn Phe Leu Glu Lys Gly Asp Lys Ile Ala
65           70           75           80
Lys Glu Ser Gln Phe Leu Lys Glu Glu Leu Val Ala Ala Val Glu Asp

```

-82-

Ala Leu Gln Glu Lys Asp Val Asp Gly Leu Asp Arg Thr Ala Gly Ala  
 530 535 540  
 Ile Arg Gly Arg Ala Ala Arg Val Ile His Val Val Thr Ser Glu Met  
 545 550 555 560  
 Asp Asn Tyr Glu Pro Gly Val Tyr Thr Glu Lys Val Leu Glu Ala Thr  
 565 570 575  
 Lys Leu Leu Ser Asn Thr Val Met Pro Arg Phe Thr Glu Gln Val Glu  
 580 585 590  
 Ala Ala Val Glu Ala Leu Ser Ser Asp Pro Ala Gln Pro Met Asp Glu  
 595 600 605  
 Asn Glu Phe Ile Asp Ala Ser Arg Leu Val Tyr Asp Gly Ile Arg Asp  
 610 615 620  
 Ile Arg Lys Ala Val Leu Met Ile Arg Thr Pro Glu Glu Leu Asp Asp  
 625 630 635 640  
 Ser Asp Phe Glu Thr Glu Asp Phe Asp Val Arg Ser Arg Thr Ser Val  
 645 650 655  
 Gln Thr Glu Asp Asp Gln Leu Ile Ala Gly Gln Ser Ala Arg Ala Ile  
 660 665 670  
 Met Ala Gln Leu Pro Gln Glu Gln Lys Ala Lys Ile Ala Glu Gln Val  
 675 680 685  
 Ala Ser Phe Gln Glu Glu Lys Ser Lys Leu Asp Ala Glu Val Ser Lys  
 690 695 700  
 Trp Asp Asp Ser Gly Asn Asp Ile Ile Val Leu Ala Lys Gln Met Cys  
 705 710 715 720  
 Met Ile Met Met Glu Met Thr Asp Phe Thr Arg Gly Lys Gly Pro Leu  
 725 730 735  
 Lys Asn Thr Ser Asp Val Ile Ser Ala Ala Lys Lys Ile Ala Glu Ala  
 740 745 750  
 Gly Ser Arg Met Asp Lys Leu Gly Arg Thr Ile Ala Asp His Cys Pro  
 755 760 765  
 Asp Ser Ala Cys Lys Gln Asp Leu Leu Ala Tyr Leu Gln Arg Ile Ala  
 770 775 780  
 Leu Tyr Cys His Gln Leu Asn Ile Cys Ser Lys Val Lys Ala Glu Val  
 785 790 795 800  
 Gln Asn Leu Gly Gly Glu Leu Val Val Ser Gly Val Asp Ser Ala Met  
 805 810 815  
 Ser Leu Ile Gln Ala Ala Lys Asn Leu Met Asn Ala Val Val Gln Thr  
 820 825 830  
 Val Lys Ala Ser Tyr Val Ala Ser Thr Lys Tyr Gln Lys Ser Gln Gly  
 835 840 845  
 Met Ala Ser Leu Asn Leu Pro Ala Val Ser Trp Lys Met Lys Ala Pro  
 850 855 860  
 Glu Lys Lys Pro Leu Val Lys Arg Glu Lys Gln Asp Glu Thr Gln Thr  
 865 870 875 880  
 Lys Ile Lys Arg Ala Ser Gln Lys Lys His Val Asn Pro Val Gln Ala  
 885 890 895  
 Leu Ser Glu Phe Lys Ala Met Asp Ser Ile  
 900 905

&lt;210&gt; 115

&lt;211&gt; 1701

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 115

```

cggccggccg ccatggctaa cgtggctgac acgaagctgt acgacatcct gggcggtccc      60
gcggggcgcca gcgagaacga gctgaagaag gcatacagaa agttagccaa ggaatatcat      120
cctgataaga atcccaaaat gcaggagaca aactttaaag aaataagttt tgcatatgaa      180
gtactatcaa atcctgagaa gcgtgagtta tatgacagat acggagagca aggtcttcgg      240
gaaggcagcg gcggaggtgg gtggcatgga ttgatatttt ctctcacctg tttttgtggg      300
ggattgttcg gcttcatggg caatcagagt agaagtcgaa atggcagaag aagaggagag      360
gacatgatgc atccactcaa agtatcttta gaagatctgt ataatggcaa gacaaccaa      420
ctacaactta gcaagaatgt gctctgtagt gcatgcagtg gccaggcgcg aaagtctgga      480
gctgtccaaa agtgtagtgc ttgtcgaggt cgaggtgtgc gcatcatgat cagacagctg      540
gctccaggga tggtaacaac gatgcagtct gtgtgctctg attgtaatgg tgaaggagag      600
gtaattaatg aaaaagaccg ctgtaaaaaa tgtgaaggga agaaggtgat taaagaagtc      660
aagattcttg aagtccacgt agacaaaggc atgaaacatg gacagagaat tacattcact      720
ggggaagcag accaggcccc agagtggaaac ccggagacat tgttcttttt gctaccagga      780
gaaaagaaca tggaggtatt tcagagagat gggaatgatt tgcacatgac atataaaaata      840
ggacttggtg aagctctatg tggatttcag ttcacattaa gccacctga tggacgtcag      900
attgtggtga aataccccc tggcaaagta attgaaccag ggtgtgttcg tgtagtccga      960
ggtgaaggga tgccgcagta tcgtaatccc tttgaaaaag gtgggcttta cataaagttt     1020
gatgtgcagt ttcctgaaaa caactggatc aaccagaca agctttctga actagaagat     1080
cttctgccat ctagaccgga agttcctaac ataattggag aaacagagga ggtagagctt     1140
caggaatttg atagcactcg aggtccagga ggtggtcaga ggcgtgaagc ctataatgat     1200
agctctgatg aagaaagcag cagccatcat ggacctggag tgcagtgtgc ccatacagtaa     1260
actctgcaaa caaattgcac aggtggattt tctttccaca tttgcctgat ttgttctcag     1320
caatccagct ggagtgtctt atcaatccag atgaaactgag ggacatctgt tggctctatgt     1380
ataactttta aaattggtat agtatctaca gagtgtataa tttaaactaa ccacaaagct     1440
ttacatcttc attttgactg ttccatagca gaataaagca cttgaaagga aacaagactc     1500
cctttcacac atggattatt ataagtttca atcctgggat ctgtgcttga tttttatcag     1560
ttttgtgtag atttttatgt ttcataattt aaatttaaat cccacattgt aaagtttgta     1620
caatttgtcc tgaagctttg tgtttggctg cacctgcata agctgctaca aatagaataa     1680
agaatttcat agcctgtaaa a                                     1701

```

&lt;210&gt; 116

&lt;211&gt; 415

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 116

```

Met Ala Asn Val Ala Asp Thr Lys Leu Tyr Asp Ile Leu Gly Val Pro
 1              5              10              15
Ala Gly Ala Ser Glu Asn Glu Leu Lys Lys Ala Tyr Arg Lys Leu Ala
 20              25              30
Lys Glu Tyr His Pro Asp Lys Asn Pro Gln Met Gln Glu Thr Asn Phe
 35              40              45
Lys Glu Ile Ser Phe Ala Tyr Glu Val Leu Ser Asn Pro Glu Lys Arg
 50              55              60
Glu Leu Tyr Asp Arg Tyr Gly Glu Gln Gly Leu Arg Glu Gly Ser Gly
 65              70              75              80
Gly Gly Gly Trp His Gly Leu Ile Phe Ser Leu Thr Val Phe Cys Gly
 85              90              95
Gly Leu Phe Gly Phe Met Gly Asn Gln Ser Arg Ser Arg Asn Gly Arg
100              105              110
Arg Arg Gly Glu Asp Met Met His Pro Leu Lys Val Ser Leu Glu Asp
115              120              125
Leu Tyr Asn Gly Lys Thr Thr Lys Leu Gln Leu Ser Lys Asn Val Leu
130              135              140
Cys Ser Ala Cys Ser Gly Gln Gly Gly Lys Ser Gly Ala Val Gln Lys

```



145                      150                      155                      160  
 Cys Ser Ala Cys Arg Gly Arg Gly Val Arg Ile Met Ile Arg Gln Leu  
                                  165                      170                      175  
 Ala Pro Gly Met Val Gln Gln Met Gln Ser Val Cys Ser Asp Cys Asn  
                                  180                      185                      190  
 Gly Glu Gly Glu Val Ile Asn Glu Lys Asp Arg Cys Lys Lys Cys Glu  
                                  195                      200                      205  
 Gly Lys Lys Val Ile Lys Glu Val Lys Ile Leu Glu Val His Val Asp  
                                  210                      215                      220  
 Lys Gly Met Lys His Gly Gln Arg Ile Thr Phe Thr Gly Glu Ala Asp  
 225                                   230                                   235                                   240  
 Gln Ala Pro Glu Trp Asn Pro Glu Thr Leu Phe Phe Leu Leu Pro Gly  
                                  245                                   250                                   255  
 Glu Lys Asn Met Glu Val Phe Gln Arg Asp Gly Asn Asp Leu His Met  
                                  260                                   265                                   270  
 Thr Tyr Lys Ile Gly Leu Val Glu Ala Leu Cys Gly Phe Gln Phe Thr  
                                  275                                   280                                   285  
 Leu Ser His Leu Asp Gly Arg Gln Ile Val Val Lys Tyr Pro Pro Gly  
                                  290                                   295                                   300  
 Lys Val Ile Glu Pro Gly Cys Val Arg Val Val Arg Gly Glu Gly Met  
 305                                   310                                   315                                   320  
 Pro Gln Tyr Arg Asn Pro Phe Glu Lys Gly Gly Leu Tyr Ile Lys Phe  
                                  325                                   330                                   335  
 Asp Val Gln Phe Pro Glu Asn Asn Trp Ile Asn Pro Asp Lys Leu Ser  
                                  340                                   345                                   350  
 Glu Leu Glu Asp Leu Leu Pro Ser Arg Pro Glu Val Pro Asn Ile Ile  
                                  355                                   360                                   365  
 Gly Glu Thr Glu Glu Val Glu Leu Gln Glu Phe Asp Ser Thr Arg Gly  
                                  370                                   375                                   380  
 Ser Gly Gly Gly Gln Arg Arg Glu Ala Tyr Asn Asp Ser Ser Asp Glu  
 385                                   390                                   395                                   400  
 Glu Ser Ser Ser His His Gly Pro Gly Val Gln Cys Ala His Gln  
                                  405                                   410                                   415

&lt;210&gt; 117

&lt;211&gt; 1821

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 117

cgcgtagaact gcttcttgca ggctggccat ggcgcttcac gttcccaagg ctccgggctt      60  
 tgcccagatg ctcaaggagg gagcgaaaca cttttcagga ttagaagagg ctgtgtatag      120  
 aaacatacaa gcttgcaagg agcttgccca aaccactcgt acagcatatg gaccaaagg      180  
 aatgaacaaa atggttatca accacttgga gaagttgttt gtgacaaacg atgcagcaac      240  
 tattttaaga gaactagaag tacagcatcc tgctgcaaaa atgattgtaa tggcttctca      300  
 tatgcaagag caagaagttg gagatggcac aaactttgtt ctggtatttg ctggagctct      360  
 cctggaatta gctgaagaac ttctgaggat tggcctgtca gtttcagagg tcatagaagg      420  
 ttatgaaata gcctgcagaa aagctcatga gattcttcct aatttggtat gttgttctgc      480  
 aaaaaacctt cgagatattg atgaagtctc atctctactt cgtacctcca taatgagtaa      540  
 acaatatggg aatgaagtat ttctggccaa gcttattgct caggcatgcg tatctatttt      600  
 tcttgattcc ggccatttca atgttgataa catcagagtt tgtaaaattc tgggctctgg      660  
 tatcagttcc tcttcagtat tgcattggcat gggttttaag aaggaaaccg aaggatgatg      720  
 aacatctgtc aaagatgcaa aaatagcagt gtactcttgt ccttttgatg gcatgataac      780  
 agaaactaag ggaacagtgt tgataaagac tgctgaagaa ttgatgaatt ttagtaaggg      840  
 agaagaaaac ctcattggatg cacaagtcaa agctattgct gatactgggtg caaatgtcgt      900

```

agtaacaggt ggcaaagtgg cagacatggc tcttcattat gcaaataaat ataatatcat      960
gttagtgagg ctaaactcaa aatgggatct ccgaagactt tgtaaaactg ttggtgctac      1020
agctcttcct agattgacac ctcctgtcct tgaagaaatg ggacactgtg acagtgttta      1080
cctctcagaa gttggagata ctcagggtgtt ggtttttaag catgaaaagg aagatggcgc      1140
catttctacc atagtacttc gaggtctctac agacaatctg atggatgaca tagaaagggg      1200
agtagacgat ggtgttaata ctttcaaagt tcttacaagg gataaacgtc ttgtaccgg      1260
aggtggagca acagaaattg aattagccaa acagatcaca tcatatggag agacatgtcc      1320
tggacttgaa cagtatgcta ttaagaagtt tgctgaggca tttgaagcta ttccccgcgc      1380
actggcagaa aactctggag ttaaggccaa tgaagtaatc tctaaacttt atgcagtaca      1440
tcaagaagga aataaaaacg ttggattaga tattgaggct gaagtccctg ctgtaaagga      1500
catgctggaa gctggtattc tagataactta cctgggaaaa tattgggcta tcaaactcgc      1560
tactaatgct gcagtcactg tacttagagt ggatcagatc atcatggcaa aaccagctgg      1620
tgggcccaag cctccaagtg ggaagaaaga ctgggatgat gaccaaagt attgaaattg      1680
gcttaatttt tactgtaggt gaaggctgta tttgtagtag tactcaagaa tcacctgatg      1740
ttttcttatt ctccttaaat taagagttat tttgtgtttg tattcttggc tggatgttat      1800
aataaacata ttgttactgt c                                     1821

```

&lt;210&gt; 118

&lt;211&gt; 548

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 118

```

Met Ala Leu His Val Pro Lys Ala Pro Gly Phe Ala Gln Met Leu Lys
 1              5              10              15
Glu Gly Ala Lys His Phe Ser Gly Leu Glu Glu Ala Val Tyr Arg Asn
      20              25              30
Ile Gln Ala Cys Lys Glu Leu Ala Gln Thr Thr Arg Thr Ala Tyr Gly
      35              40              45
Pro Lys Gly Met Asn Lys Met Val Ile Asn His Leu Glu Lys Leu Phe
      50              55              60
Val Thr Asn Asp Ala Ala Thr Ile Leu Arg Glu Leu Glu Val Gln His
      65              70              75              80
Pro Ala Ala Lys Met Ile Val Met Ala Ser His Met Gln Glu Gln Glu
      85              90              95
Val Gly Asp Gly Thr Asn Phe Val Leu Val Phe Ala Gly Ala Leu Leu
      100             105             110
Glu Leu Ala Glu Glu Leu Leu Arg Ile Gly Leu Ser Val Ser Glu Val
      115             120             125
Ile Glu Gly Tyr Glu Ile Ala Cys Arg Lys Ala His Glu Ile Leu Pro
      130             135             140
Asn Leu Val Cys Cys Ser Ala Lys Asn Leu Arg Asp Ile Asp Glu Val
      145             150             155             160
Ser Ser Leu Leu Arg Thr Ser Ile Met Ser Lys Gln Tyr Gly Asn Glu
      165             170             175
Val Phe Leu Ala Lys Leu Ile Ala Gln Ala Cys Val Ser Ile Phe Pro
      180             185             190
Asp Ser Gly His Phe Asn Val Asp Asn Ile Arg Val Cys Lys Ile Leu
      195             200             205
Gly Ser Gly Ile Ser Ser Ser Ser Val Leu His Gly Met Val Phe Lys
      210             215             220
Lys Glu Thr Glu Gly Asp Val Thr Ser Val Lys Asp Ala Lys Ile Ala
      225             230             235             240
Val Tyr Ser Cys Pro Phe Asp Gly Met Ile Thr Glu Thr Lys Gly Thr
      245             250             255

```

Val Leu Ile Lys Thr Ala Glu Glu Leu Met Asn Phe Ser Lys Gly Glu  
 260 265 270  
 Glu Asn Leu Met Asp Ala Gln Val Lys Ala Ile Ala Asp Thr Gly Ala  
 275 280 285  
 Asn Val Val Val Thr Gly Gly Lys Val Ala Asp Met Ala Leu His Tyr  
 290 295 300  
 Ala Asn Lys Tyr Asn Ile Met Leu Val Arg Leu Asn Ser Lys Trp Asp  
 305 310 315 320  
 Leu Arg Arg Leu Cys Lys Thr Val Gly Ala Thr Ala Leu Pro Arg Leu  
 325 330 335  
 Thr Pro Pro Val Leu Glu Glu Met Gly His Cys Asp Ser Val Tyr Leu  
 340 345 350  
 Ser Glu Val Gly Asp Thr Gln Val Val Val Phe Lys His Glu Lys Glu  
 355 360 365  
 Asp Gly Ala Ile Ser Thr Ile Val Leu Arg Gly Ser Thr Asp Asn Leu  
 370 375 380  
 Met Asp Asp Ile Glu Arg Val Val Asp Asp Gly Val Asn Thr Phe Lys  
 385 390 395 400  
 Val Leu Thr Arg Asp Lys Arg Leu Val Pro Gly Gly Gly Ala Thr Glu  
 405 410 415  
 Ile Glu Leu Ala Lys Gln Ile Thr Ser Tyr Gly Glu Thr Cys Pro Gly  
 420 425 430  
 Leu Glu Gln Tyr Ala Ile Lys Lys Phe Ala Glu Ala Phe Glu Ala Ile  
 435 440 445  
 Pro Arg Ala Leu Ala Glu Asn Ser Gly Val Lys Ala Asn Glu Val Ile  
 450 455 460  
 Ser Lys Leu Tyr Ala Val His Gln Glu Gly Asn Lys Asn Val Gly Leu  
 465 470 475 480  
 Asp Ile Glu Ala Glu Val Pro Ala Val Lys Asp Met Leu Glu Ala Gly  
 485 490 495  
 Ile Leu Asp Thr Tyr Leu Gly Lys Tyr Trp Ala Ile Lys Leu Ala Thr  
 500 505 510  
 Asn Ala Ala Val Thr Val Leu Arg Val Asp Gln Ile Ile Met Ala Lys  
 515 520 525  
 Pro Ala Gly Gly Pro Lys Pro Pro Ser Gly Lys Lys Asp Trp Asp Asp  
 530 535 540  
 Asp Gln Asn Asp  
 545

<210> 119  
 <211> 1321  
 <212> DNA  
 <213> Homo Sapiens

<400> 119  
 cccccaagat ggctgctgag gacgagttac agctgccgcg gctccccgag ctgttcgaaa 60  
 ctggtagaca gttactggac gaagtagaag tggcgactga acccgccggt tcccggatag 120  
 tccaggagaa ggtgttcaag ggcttggacc tccttgagaa ggctgccgaa atgttatcgc 180  
 agctcgactt gttcagccga aatgaagatt tggaagagat tgcttcacc gacctgaagt 240  
 accttttggg gccagcgttt caaggagccc tcaccatgaa acaagtcaac cccagcaagc 300  
 gtctagatca tttgcagcgg gctcgagaac actttataaa ctacttaact cagtgccatt 360  
 gctatcatgt ggcagagttt gagctgcccc aaaccatgaa caactctgct gaaaatcaca 420  
 ctgccaatc ctccatggct taccctagtc tcgttgctat ggcatctcaa agacaggcta 480  
 aaatacagag atacaagcag aagaaggagt tggagcatag gttgtctgca atgaaatctg 540  
 ctgtggaaag tggatcaagca gatgatgagc gtgttcgtga atattatctt cttcaccttc 600

```

agagggtggat tgatatcagc ttagaagaga ttgagagcat tgaccaggaa ataaagatcc 660
tgagagaaaag agactcttca agagaggcat caacttctaa ctcattctgc caggagaggc 720
ctccagtga acccttcatt ctactcggga acatgggtca agccaaagta tttggagctg 780
gttatccaag tctgccaact atgacggtga gtgactggta tgagcaacat cggaaatatg 840
gagcattacc ggatcaggga atagccaagg cagcaccaga ggaattcaga aaagcagctc 900
agcaacagga agaacaagaa gaaaaggagg aagaggatga tgaacaaaca ctccacagag 960
ccggggagtg ggatgactgg aaggacacc atcctagggg ctatgggaac cgacagaaca 1020
tgggctgac ttcccacaac accacaggac tgcagggtgc acaactccct gccaaagaaa 1080
accatgcagt cctccctcc ctggtctcct gcttcagctc tgtacaacga gggcaaagat 1140
gctaaatctt gctttgcatt cagtaaagt tcaagtgtat aagtgtgtat ttgtacccta 1200
gatgatatga accagcagtc ttgttttggc atcatcctca tcatgttgta ttccagcttc 1260
ttaagtggaa ggaaaagagt gctgagaaat ggctctgtat aatctatggc tatccgaatt 1320
c 1321

```

&lt;210&gt; 120

&lt;211&gt; 339

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 120

```

Met Ala Ala Glu Asp Glu Leu Gln Leu Pro Arg Leu Pro Glu Leu Phe
1 5 10 15
Glu Thr Gly Arg Gln Leu Leu Asp Glu Val Glu Val Ala Thr Glu Pro
20 25 30
Ala Gly Ser Arg Ile Val Gln Glu Lys Val Phe Lys Gly Leu Asp Leu
35 40 45
Leu Glu Lys Ala Ala Glu Met Leu Ser Gln Leu Asp Leu Phe Ser Arg
50 55 60
Asn Glu Asp Leu Glu Glu Ile Ala Ser Thr Asp Leu Lys Tyr Leu Leu
65 70 75 80
Val Pro Ala Phe Gln Gly Ala Leu Thr Met Lys Gln Val Asn Pro Ser
85 90 95
Lys Arg Leu Asp His Leu Gln Arg Ala Arg Glu His Phe Ile Asn Tyr
100 105 110
Leu Thr Gln Cys His Cys Tyr His Val Ala Glu Phe Glu Leu Pro Lys
115 120 125
Thr Met Asn Asn Ser Ala Glu Asn His Thr Ala Asn Ser Ser Met Ala
130 135 140
Tyr Pro Ser Leu Val Ala Met Ala Ser Gln Arg Gln Ala Lys Ile Gln
145 150 155 160
Arg Tyr Lys Gln Lys Lys Glu Leu Glu His Arg Leu Ser Ala Met Lys
165 170 175
Ser Ala Val Glu Ser Gly Gln Ala Asp Asp Glu Arg Val Arg Glu Tyr
180 185 190
Tyr Leu Leu His Leu Gln Arg Trp Ile Asp Ile Ser Leu Glu Glu Ile
195 200 205
Glu Ser Ile Asp Gln Glu Ile Lys Ile Leu Arg Glu Arg Asp Ser Ser
210 215 220
Arg Glu Ala Ser Thr Ser Asn Ser Ser Arg Gln Glu Arg Pro Pro Val
225 230 235 240
Lys Pro Phe Ile Leu Thr Arg Asn Met Ala Gln Ala Lys Val Phe Gly
245 250 255
Ala Gly Tyr Pro Ser Leu Pro Thr Met Thr Val Ser Asp Trp Tyr Glu
260 265 270
Gln His Arg Lys Tyr Gly Ala Leu Pro Asp Gln Gly Ile Ala Lys Ala

```

```

agaggtggat tgatatcagc ttagaagaga ttgagagcat tgaccaggaa ataaagatcc 660
tgagagaaag agactcttca agagaggcat caacttctaa ctcactctgc caggagaggg 720
ctccagtga acccttcatt ctactcggga acatgggtca agccaaagta tttggagctg 780
gttatccaag tctgccaact atgacggtga gtgactggta tgagcaacat cggaaatatg 840
gagcattacc ggatcaggga atagccaagg cagcaccaga ggaattcaga aaagcagctc 900
agcaacagga agaacaagaa gaaaaggagg aagaggatga tgaacaaaca ctccacagag 960
cccgaggatg ggatgactgg aaggacaccc atcctagggg ctatgggaac cgacagaaca 1020
tgggctgata tttccacaac accacaggac tgcagggtgc acaactccct gccaaaggaa 1080
accatgcagt cctcccctcc ctgggtctct gcttcagctc tgtacaacga gggcaaagat 1140
gctaaatctt gctttgcatt cagtaaagtg tcaagtgatt aagtgtgtat ttgtacccta 1200
gatgatatga accagcagtc ttgttttggc atcatcctca tcatgttgta ttccagcttc 1260
ttaagtggaa ggaaaagagt gctgagaaat ggctctgtat aatctatggc tatccgaatt 1320
c 1321

```

&lt;210&gt; 120

&lt;211&gt; 339

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 120

```

Met Ala Ala Glu Asp Glu Leu Gln Leu Pro Arg Leu Pro Glu Leu Phe
  1             5             10             15
Glu Thr Gly Arg Gln Leu Leu Asp Glu Val Glu Val Ala Thr Glu Pro
      20             25             30
Ala Gly Ser Arg Ile Val Gln Glu Lys Val Phe Lys Gly Leu Asp Leu
      35             40             45
Leu Glu Lys Ala Ala Glu Met Leu Ser Gln Leu Asp Leu Phe Ser Arg
      50             55             60
Asn Glu Asp Leu Glu Glu Ile Ala Ser Thr Asp Leu Lys Tyr Leu Leu
      65             70             75             80
Val Pro Ala Phe Gln Gly Ala Leu Thr Met Lys Gln Val Asn Pro Ser
      85             90             95
Lys Arg Leu Asp His Leu Gln Arg Ala Arg Glu His Phe Ile Asn Tyr
      100            105            110
Leu Thr Gln Cys His Cys Tyr His Val Ala Glu Phe Glu Leu Pro Lys
      115            120            125
Thr Met Asn Asn Ser Ala Glu Asn His Thr Ala Asn Ser Ser Met Ala
      130            135            140
Tyr Pro Ser Leu Val Ala Met Ala Ser Gln Arg Gln Ala Lys Ile Gln
      145            150            155            160
Arg Tyr Lys Gln Lys Lys Glu Leu Glu His Arg Leu Ser Ala Met Lys
      165            170            175
Ser Ala Val Glu Ser Gly Gln Ala Asp Asp Glu Arg Val Arg Glu Tyr
      180            185            190
Tyr Leu Leu His Leu Gln Arg Trp Ile Asp Ile Ser Leu Glu Glu Ile
      195            200            205
Glu Ser Ile Asp Gln Glu Ile Lys Ile Leu Arg Glu Arg Asp Ser Ser
      210            215            220
Arg Glu Ala Ser Thr Ser Asn Ser Ser Arg Gln Glu Arg Pro Pro Val
      225            230            235            240
Lys Pro Phe Ile Leu Thr Arg Asn Met Ala Gln Ala Lys Val Phe Gly
      245            250            255
Ala Gly Tyr Pro Ser Leu Pro Thr Met Thr Val Ser Asp Trp Tyr Glu
      260            265            270
Gln His Arg Lys Tyr Gly Ala Leu Pro Asp Gln Gly Ile Ala Lys Ala

```

```
<210> 121
<211> 2965
<212> DNA
<213> Homo Sapiens
```

-89-

```

gtttaaaga aaatcttgaa gaaactctgc aactagaaat agaaaactgc aaggaggaaa 2400
tagcttctat ttctagccta aaagctgaat tagaaagaat aaaagtggaa aaaggacagt 2460
tggagtccac attaagagag aagtctcaac agcttgagag tcttcaggaa ataaagatca 2520
gtttggaaga gcagttaaag aaagagactg ctgctaaggc taccgttgaa cagctaattgt 2580
ttgaagagaa gaacaaagct cagagattac agacagaatt agatgtcagt gagcaagtcc 2640
agagagattt tgtaaagctt tcacagaccc ttcaggtgca gttagagcgg atccggcaag 2700
ctgactcctt ggagagaatc cgggcaattc tgaatgatac taaactgaca gacattaacc 2760
agcttctctga gacatgacac cctcatggca ggattctagc ctgcactttg ggtttttaac 2820
tcattcttag agcaacagta attattattt aactcttaac tgaagaaaga gaagtcacaa 2880
caaaaggaag actggagaaa tgcttacttc tagagggaga agactgtgcg gcacaggaaa 2940
cagcaaacag tggggtgatc tgcag 2965

```

<210> 122  
 <211> 862  
 <212> PRT  
 <213> Homo Sapiens

<400> 122

```

Met Ala Gln Pro Gly Pro Ala Ser Gln Pro Asp Val Ser Leu Gln Gln
 1          5          10          15
Arg Val Ala Glu Leu Glu Lys Ile Asn Ala Glu Phe Leu Arg Ala Gln
          20          25          30
Gln Gln Leu Glu Gln Glu Phe Asn Gln Lys Arg Ala Lys Phe Lys Glu
          35          40          45
Leu Tyr Leu Ala Lys Glu Glu Asp Leu Lys Arg Gln Asn Ala Val Leu
          50          55          60
Gln Ala Ala Gln Asp Asp Leu Gly His Leu Arg Thr Gln Leu Trp Glu
          65          70          75          80
Ala Gln Ala Glu Met Glu Asn Ile Lys Ala Ile Ala Thr Val Ser Glu
          85          90          95
Asn Thr Lys Gln Glu Ala Ile Asp Glu Val Lys Arg Gln Trp Arg Glu
          100          105          110
Glu Val Ala Ser Leu Gln Ala Val Met Lys Glu Thr Val Arg Asp Tyr
          115          120          125
Glu His Gln Phe His Leu Arg Leu Glu Gln Glu Arg Thr Gln Trp Ala
          130          135          140
Gln Tyr Arg Glu Tyr Ala Glu Arg Glu Ile Ala Asp Leu Arg Arg Arg
          145          150          155          160
Leu Ser Glu Gly Gln Glu Glu Glu Asn Leu Glu Asn Glu Met Lys Lys
          165          170          175
Ala Gln Glu Asp Ala Glu Lys Leu Arg Ser Val Val Met Pro Met Glu
          180          185          190
Lys Glu Ile Ala Ala Leu Lys Asp Lys Leu Thr Glu Ala Glu Asp Lys
          195          200          205
Ile Lys Glu Leu Glu Ala Ser Lys Val Lys Glu Leu Asn His Tyr Leu
          210          215          220
Glu Ala Glu Lys Ser Cys Arg Thr Asp Leu Glu Met Tyr Val Ala Val
          225          230          235          240
Leu Asn Thr Gln Lys Ser Val Leu Gln Glu Asp Ala Glu Lys Leu Arg
          245          250          255
Lys Glu Leu His Glu Val Cys His Leu Leu Glu Gln Glu Arg Gln Gln
          260          265          270
His Asn Gln Leu Lys His Thr Trp Gln Lys Ala Asn Asp Gln Phe Leu
          275          280          285
Glu Ser Gln Arg Leu Leu Met Arg Asp Met Gln Arg Met Glu Ile Val

```

290 295 300  
 Leu Thr Ser Glu Gln Leu Arg Gln Val Glu Glu Leu Lys Lys Lys Asp  
 305 310 315 320  
 Gln Glu Asp Asp Glu Gln Gln Arg Leu Asn Lys Arg Lys Asp His Lys  
 325 330 335  
 Lys Ala Asp Val Glu Glu Glu Ile Lys Ile Pro Val Val Cys Ala Leu  
 340 345 350  
 Thr Gln Glu Glu Ser Ser Ala Gln Leu Ser Asn Glu Glu Glu His Leu  
 355 360 365  
 Asp Ser Thr Arg Gly Ser Val His Ser Leu Asp Ala Gly Leu Leu Leu  
 370 375 380  
 Pro Ser Gly Asp Pro Phe Ser Lys Ser Asp Asn Asp Met Phe Lys Asp  
 385 390 395 400  
 Gly Leu Arg Arg Ala Gln Ser Thr Asp Ser Leu Gly Thr Ser Gly Ser  
 405 410 415  
 Leu Gln Ser Lys Ala Leu Gly Tyr Asn Tyr Lys Ala Lys Ser Ala Gly  
 420 425 430  
 Asn Leu Asp Glu Ser Asp Phe Gly Pro Leu Val Gly Ala Asp Ser Val  
 435 440 445  
 Ser Glu Asn Phe Asp Thr Ala Ser Leu Gly Ser Leu Gln Met Pro Ser  
 450 455 460  
 Gly Phe Met Leu Thr Lys Asp Gln Glu Arg Ala Ile Lys Ala Met Thr  
 465 470 475 480  
 Pro Glu Gln Glu Glu Thr Ala Ser Leu Leu Ser Ser Val Thr Gln Gly  
 485 490 495  
 Met Glu Ser Ala Tyr Val Ser Pro Ser Gly Tyr Arg Leu Val Ser Glu  
 500 505 510  
 Thr Glu Trp Asn Leu Leu Gln Lys Glu Val His Asn Ala Gly Asn Lys  
 515 520 525  
 Leu Gly Arg Arg Cys Asp Met Cys Ser Asn Tyr Glu Lys Gln Leu Gln  
 530 535 540  
 Gly Ile Gln Ile Gln Glu Ala Glu Thr Arg Asp Gln Val Lys Lys Leu  
 545 550 555 560  
 Gln Leu Met Leu Arg Gln Ala Asn Asp Gln Leu Glu Lys Thr Met Lys  
 565 570 575  
 Asp Lys Gln Glu Leu Glu Asp Phe Ile Lys Gln Ser Ser Glu Asp Ser  
 580 585 590  
 Ser His Gln Ile Ser Ala Leu Val Leu Arg Ala Gln Ala Ser Glu Ile  
 595 600 605  
 Leu Leu Glu Glu Leu Gln Gln Gly Leu Ser Gln Ala Lys Arg Asp Val  
 610 615 620  
 Gln Glu Gln Met Ala Val Leu Met Gln Ser Arg Glu Gln Val Ser Glu  
 625 630 635 640  
 Glu Leu Val Arg Leu Gln Lys Asp Asn Asp Ser Leu Gln Gly Lys His  
 645 650 655  
 Ser Leu His Val Ser Leu Gln Gln Ala Glu Asp Phe Ile Leu Pro Asp  
 660 665 670  
 Thr Thr Glu Ala Leu Arg Glu Leu Val Leu Lys Tyr Arg Glu Asp Ile  
 675 680 685  
 Ile Asn Val Arg Thr Ala Ala Asp His Val Glu Glu Lys Leu Lys Ala  
 690 695 700  
 Glu Ile Leu Phe Leu Lys Glu Gln Ile Gln Ala Glu Gln Cys Leu Lys  
 705 710 715 720  
 Glu Asn Leu Glu Glu Thr Leu Gln Leu Glu Ile Glu Asn Cys Lys Glu  
 725 730 735



Glu Ile Ala Ser Ile Ser Ser Leu Lys Ala Glu Leu Glu Arg Ile Lys  
                   740                                  745                                  750  
 Val Glu Lys Gly Gln Leu Glu Ser Thr Leu Arg Glu Lys Ser Gln Gln  
                   755                                  760                                  765  
 Leu Glu Ser Leu Gln Glu Ile Lys Ile Ser Leu Glu Glu Gln Leu Lys  
                   770                                  775                                  780  
 Lys Glu Thr Ala Ala Lys Ala Thr Val Glu Gln Leu Met Phe Glu Glu  
 785                                  790                                  795                                  800  
 Lys Asn Lys Ala Gln Arg Leu Gln Thr Glu Leu Asp Val Ser Glu Gln  
                                   805                                  810                                  815  
 Val Gln Arg Asp Phe Val Lys Leu Ser Gln Thr Leu Gln Val Gln Leu  
                                   820                                  825                                  830  
 Glu Arg Ile Arg Gln Ala Asp Ser Leu Glu Arg Ile Arg Ala Ile Leu  
                                   835                                  840                                  845  
 Asn Asp Thr Lys Leu Thr Asp Ile Asn Gln Leu Pro Glu Thr  
                   850                                  855                                  860

<210> 123  
 <211> 544  
 <212> DNA  
 <213> Homo Sapiens

<400> 123  
 gggagtggcg tggcgcaggg atggcacaaa agaaatatct tcaagcaaaa ttgaccaggt 60  
 ttttaaggga agacaggatt caacttttga aacctccata tacagatgaa aataaaaaag 120  
 ttggtttggc attaaaggac cttgctaagc agtactctga cagactagaa tgctgtgaaa 180  
 atgaagtaga aaaggttaata gaagaaatac gttgcaaggc aattgagcgt ggaacaggaa 240  
 atgacaatta tagaacaacg ggaattgcta caatcgaggt gtttttacca ccaagactaa 300  
 aaaaagatag gaaaaacttg ttggagaccg gattgcacat cactggcaga gaactgaggt 360  
 ccaaaatagc tgaaaccttt ggacttcaag aanattatat caaaattgtc ataaataaga 420  
 agcaactacn actagggaaa acccttgaag ancaaggcgt ggctcacaat gtgaaagcga 480  
 tgggtgcttga actaaaacaa tctgaagagg acgcgaggaa aaacttccag ttagaggaag 540  
 agga 544

<210> 124  
 <211> 178  
 <212> PRT  
 <213> Homo Sapiens

<400> 124  
 Glu Trp Arg Gly Ala Gly Met Ala Gln Lys Lys Tyr Leu Gln Ala Lys  
   1                  5                                  10                                  15  
 Leu Thr Gln Phe Leu Arg Glu Asp Arg Ile Gln Leu Trp Lys Pro Pro  
                   20                                  25                                  30  
 Tyr Thr Asp Glu Asn Lys Lys Val Gly Leu Ala Leu Lys Asp Leu Ala  
                   35                                  40                                  45  
 Lys Gln Tyr Ser Asp Arg Leu Glu Cys Cys Glu Asn Glu Val Glu Lys  
                   50                                  55                                  60  
 Val Ile Glu Glu Ile Arg Cys Lys Ala Ile Glu Arg Gly Thr Gly Asn  
 65                                  70                                  75                                  80  
 Asp Asn Tyr Arg Thr Thr Gly Ile Ala Thr Ile Glu Val Phe Leu Pro  
                                   85                                  90                                  95  
 Pro Arg Leu Lys Lys Asp Arg Lys Asn Leu Leu Glu Thr Arg Leu His  
                   100                                  105                                  110  
 Ile Thr Gly Arg Glu Leu Arg Ser Lys Ile Ala Glu Thr Phe Gly Leu

```

      115      120      125
Gln Glu Tyr Ile Lys Ile Val Ile Asn Lys Lys Gln Leu Leu Gly Lys
      130      135      140
Thr Leu Glu Gln Gly Val Ala His Asn Val Lys Ala Met Val Leu Glu
145      150      155      160
Leu Lys Gln Ser Glu Glu Asp Ala Arg Lys Asn Phe Gln Leu Glu Glu
      165      170      175
Glu Glu

```

<210> 125  
 <211> 1302  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 125
atggagggtgg tggaccgcga gcagctgggc atgttcacgg agggcgagct gatgtcggtg      60
ggtatggaca cggtcatcca ccgcatcgac tccaccgagg tcatctacca gccgcgccgc      120
aagcggggcca agctcatcgg caagtacctg atgggggacc tgctggggga aggtctcttac      180
ggcaagggtga aggaggtgct ggactcggag acgctgtgca ggagggccgt caagatcctc      240
aagaagaaga agttgcgaag gatccccaac ggggaggcca acgtgaagaa ggaaattcaa      300
ctactgagga ggttacggca caaaaatgtc atccagctgg tggatgtgtt atacaacgaa      360
gagaagcaga aaatgtatat ggtgatggag tactgcgtgt gtggcatgca ggaaatgctg      420
gacagcgtgc cggagaagcg tttcccagtg tgccaggccc acgggtactt ctgtcagctg      480
attgacggcc tggagtacct gcatagccag ggcatgtgac acaaggacat caagccgggg      540
aacctgctgc tcaccaccgg tggcacctc aaaatctccg acctgggcgt ggccgaggca      600
ctgcaccogt tcgcggcgga cgacacctgc cggaccagcc agggctcccc ggctttccag      660
ccgcccagaga ttgccaacgg cctggacacc ttctccggct tcaaggtgga catctggtcg      720
gctgggggtca ccctctacaa catcaccacg ggtctgtacc ccttcgaagg ggacaacatc      780
tacaagttgt ttgagaacat cgggaagggg agctacgcca tcccgggcga ctgtggcccc      840
ccgctctctg acctgctgaa agggatgctt gactacgaac cggccaagag gttctccatc      900
cggcagatcc ggcagcacag ctgggtccgg aagaacatc ctccggctga agcaccagtg      960
cccatcccac cgagcccaga caccaaggac cggtggcgca gcatgactgt ggtgccgtac      1020
ttggaggacc tgcacggcgc ggacgaggac gaggacctct tcgacatcga ggtgacatc      1080
atctacactc aggacttcac ggtgcccggg caggctcccag aagaggaggc cagtcacaat      1140
ggacagcgcc ggggcctccc caaggccgtg tgtatgaacg gcacagaggc ggcgcagctg      1200
agcaccaaat ccaggcgga gggccgggccc cccaacctg cccgcaaggc ctgctccgccc      1260
agcagcaaga tccgcccgt gtcggcctgc aagcagcagt ga      1302

```

<210> 126  
 <211> 433  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 126
Met Glu Val Val Asp Pro Gln Gln Leu Gly Met Phe Thr Glu Gly Glu
 1      5      10      15
Leu Met Ser Val Gly Met Asp Thr Phe Ile His Arg Ile Asp Ser Thr
      20      25      30
Glu Val Ile Tyr Gln Pro Arg Arg Lys Arg Ala Lys Leu Ile Gly Lys
      35      40      45
Tyr Leu Met Gly Asp Leu Leu Gly Glu Gly Ser Tyr Gly Lys Val Lys
      50      55      60
Glu Val Leu Asp Ser Glu Thr Leu Cys Arg Arg Ala Val Lys Ile Leu
65      70      75      80

```

Lys Lys Lys Lys Leu Arg Arg Ile Pro Asn Gly Glu Ala Asn Val Lys  
                   85                  90                  95  
 Lys Glu Ile Gln Leu Leu Arg Arg Leu Arg His Lys Asn Val Ile Gln  
                   100                  105                  110  
 Leu Val Asp Val Leu Tyr Asn Glu Glu Lys Gln Lys Met Tyr Met Val  
                   115                  120                  125  
 Met Glu Tyr Cys Val Cys Gly Met Gln Glu Met Leu Asp Ser Val Pro  
                   130                  135                  140  
 Glu Lys Arg Phe Pro Val Cys Gln Ala His Gly Tyr Phe Cys Gln Leu  
 145                  150                  155                  160  
 Ile Asp Gly Leu Glu Tyr Leu His Ser Gln Gly Ile Val His Lys Asp  
                   165                  170                  175  
 Ile Lys Pro Gly Asn Leu Leu Leu Thr Thr Gly Gly Thr Leu Lys Ile  
                   180                  185                  190  
 Ser Asp Leu Gly Val Ala Glu Ala Leu His Pro Phe Ala Ala Asp Asp  
                   195                  200                  205  
 Thr Cys Arg Thr Ser Gln Gly Ser Pro Ala Phe Gln Pro Pro Glu Ile  
                   210                  215                  220  
 Ala Asn Gly Leu Asp Thr Phe Ser Gly Phe Lys Val Asp Ile Trp Ser  
 225                  230                  235                  240  
 Ala Gly Val Thr Leu Tyr Asn Ile Thr Thr Gly Leu Tyr Pro Phe Glu  
                   245                  250                  255  
 Gly Asp Asn Ile Tyr Lys Leu Phe Glu Asn Ile Gly Lys Gly Ser Tyr  
                   260                  265                  270  
 Ala Ile Pro Gly Asp Cys Gly Pro Pro Leu Ser Asp Leu Leu Lys Gly  
                   275                  280                  285  
 Met Leu Glu Tyr Glu Pro Ala Lys Arg Phe Ser Ile Arg Gln Ile Arg  
                   290                  295                  300  
 Gln His Ser Trp Phe Arg Lys Lys His Pro Pro Ala Glu Ala Pro Val  
 305                  310                  315                  320  
 Pro Ile Pro Pro Ser Pro Asp Thr Lys Asp Arg Trp Arg Ser Met Thr  
                   325                  330                  335  
 Val Val Pro Tyr Leu Glu Asp Leu His Gly Ala Asp Glu Asp Glu Asp  
                   340                  345                  350  
 Leu Phe Asp Ile Glu Asp Asp Ile Ile Tyr Thr Gln Asp Phe Thr Val  
                   355                  360                  365  
 Pro Gly Gln Val Pro Glu Glu Glu Ala Ser His Asn Gly Gln Arg Arg  
                   370                  375                  380  
 Gly Leu Pro Lys Ala Val Cys Met Asn Gly Thr Glu Ala Ala Gln Leu  
 385                  390                  395                  400  
 Ser Thr Lys Ser Arg Ala Glu Gly Arg Ala Pro Asn Pro Ala Arg Lys  
                   405                  410                  415  
 Ala Cys Ser Ala Ser Ser Lys Ile Arg Arg Leu Ser Ala Cys Lys Gln  
                   420                  425                  430  
 Gln

&lt;210&gt; 127

&lt;211&gt; 1488

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 127

gaggggcccgg gcggtgccgg caagatggct gcgcccgcaga agatgacgtt tcccgcagaaa  
 ccaagccaca aaaagtacag ggccgcctg aagaaggaga aacgaaagaa acgtcggcag

60

120

```

gaacttgctc gactgagaga ctcaggactc tcacagaagg aggaagagga ggacactttt 180
attgaagaac aacaactaga agaagagaag ctattggaaa gagagaggca aagattacat 240
gaggagtggg tgctaagaga gcagaaggca caagaagaat tcagaataaa gaaggaaaag 300
gaagaggcgg ctaaaaaacg gcaagaagaa caagagagaa agttaagga acaatgggaa 360
gaacagcaga ggaaagagag agaagaggag gagcagaaac gacaggagaa gaaagaaaaa 420
gaggaagctt tgcagaagat gctggatcag gctgaaaatg agttggaaaa tgggtaccaca 480
tggcaaaacc cagaaccacc cgtggatttc agagtaatgg agaaggatcg agctaattgt 540
cccttctaca gtaaaacagg agcttgcaga tttggagata gatgttcacg taaacataat 600
ttccaacat ccagtcctac ccttcttatt aagagcatgt ttacgacgtt tgggaatggag 660
cagtgcagga gggatgacta tgacctgac gcaagcctgg agtacagcga ggaagaaacc 720
taccaacagt tcctagactt ctatgaggat gtgttgcccg agttcaagaa cgtggggaaa 780
gtgattcagt tcaaggtcag ctgcaatttg gaacctcacc tgagggggcaa tgtatatgtt 840
cagtaccagt cggaagaaga atgccaagca gccctttctc tgtttaacgg acgatggtat 900
gcaggacgac agctgcagtg tgaattctgc cccgtgaccc ggtggaaaat ggcgatttgt 960
ggtttatttg aaatacaaca atgtccaaga ggaaagcact gcaactttct tcatgtgttc 1020
agaaatccca acaatgaatt ctgggaagct aatagagaca tctacttgtc tccagatcgg 1080
actggctcct cctttgggaa gaactccgaa aggagggaga ggatggggca ccacgacgac 1140
tactacagca ggtgcgggg aaggagaaac cctagtccag accactccta caaaagaaat 1200
ggggaaatccg agaggaaaaag tagtcgtcac agggggaaga aatctcaca acgcacatca 1260
aagagtcggg agaggcaciaa ttcacgaagc agaggaagaa atagggaccg cagcagggac 1320
cgagccggg gccggggcag ccggagccgg agccggagcc ggagccgcag gagccgccgc 1380
agccggagcc aaagtctctc taggtcccga agtcgtggca ggaggaggtc gggtaataga 1440
gacagaactg ttcagagtcc caaatccaaa taaactagtt ttgttctt 1488

```

&lt;210&gt; 128

&lt;211&gt; 482

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 128

```

Met Ala Ala Pro Glu Lys Met Thr Phe Pro Glu Lys Pro Ser His Lys
 1             5             10             15
Lys Tyr Arg Ala Ala Leu Lys Lys Glu Lys Arg Lys Lys Arg Arg Gln
      20             25             30
Glu Leu Ala Arg Leu Arg Asp Ser Gly Leu Ser Gln Lys Glu Glu Glu
 35             40             45
Glu Asp Thr Phe Ile Glu Glu Gln Gln Leu Glu Glu Glu Lys Leu Leu
 50             55             60
Glu Arg Glu Arg Gln Arg Leu His Glu Glu Trp Leu Leu Arg Glu Gln
 65             70             75             80
Lys Ala Gln Glu Glu Phe Arg Ile Lys Lys Glu Lys Glu Glu Ala Ala
      85             90             95
Lys Lys Arg Gln Glu Glu Gln Glu Arg Lys Leu Lys Glu Gln Trp Glu
      100             105             110
Glu Gln Gln Arg Lys Glu Arg Glu Glu Glu Gln Lys Arg Gln Glu
      115             120             125
Lys Lys Glu Lys Glu Glu Ala Leu Gln Lys Met Leu Asp Gln Ala Glu
      130             135             140
Asn Glu Leu Glu Asn Gly Thr Thr Trp Gln Asn Pro Glu Pro Pro Val
      145             150             155             160
Asp Phe Arg Val Met Glu Lys Asp Arg Ala Asn Cys Pro Phe Tyr Ser
      165             170             175
Lys Thr Gly Ala Cys Arg Phe Gly Asp Arg Cys Ser Arg Lys His Asn
      180             185             190
Phe Pro Thr Ser Ser Pro Thr Leu Leu Ile Lys Ser Met Phe Thr Thr

```

195                      200                      205  
 Phe Gly Met Glu Gln Cys Arg Arg Asp Asp Tyr Asp Pro Asp Ala Ser  
 210                      215                      220  
 Leu Glu Tyr Ser Glu Glu Glu Thr Tyr Gln Gln Phe Leu Asp Phe Tyr  
 225                      230                      235                      240  
 Glu Asp Val Leu Pro Glu Phe Lys Asn Val Gly Lys Val Ile Gln Phe  
 245                      250                      255  
 Lys Val Ser Cys Asn Leu Glu Pro His Leu Arg Gly Asn Val Tyr Val  
 260                      265                      270  
 Gln Tyr Gln Ser Glu Glu Glu Cys Gln Ala Ala Leu Ser Leu Phe Asn  
 275                      280                      285  
 Gly Arg Trp Tyr Ala Gly Arg Gln Leu Gln Cys Glu Phe Cys Pro Val  
 290                      295                      300  
 Thr Arg Trp Lys Met Ala Ile Cys Gly Leu Phe Glu Ile Gln Gln Cys  
 305                      310                      315                      320  
 Pro Arg Gly Lys His Cys Asn Phe Leu His Val Phe Arg Asn Pro Asn  
 325                      330                      335  
 Asn Glu Phe Trp Glu Ala Asn Arg Asp Ile Tyr Leu Ser Pro Asp Arg  
 340                      345                      350  
 Thr Gly Ser Ser Phe Gly Lys Asn Ser Glu Arg Arg Glu Arg Met Gly  
 355                      360                      365  
 His His Asp Asp Tyr Tyr Ser Arg Leu Arg Gly Arg Arg Asn Pro Ser  
 370                      375                      380  
 Pro Asp His Ser Tyr Lys Arg Asn Gly Glu Ser Glu Arg Lys Ser Ser  
 385                      390                      395                      400  
 Arg His Arg Gly Lys Lys Ser His Lys Arg Thr Ser Lys Ser Arg Glu  
 405                      410                      415  
 Arg His Asn Ser Arg Ser Arg Gly Arg Asn Arg Asp Arg Ser Arg Asp  
 420                      425                      430  
 Arg Ser Arg Gly Arg Gly Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg  
 435                      440                      445  
 Arg Ser Arg Arg Ser Arg Ser Gln Ser Ser Ser Arg Ser Arg Ser Arg  
 450                      455                      460  
 Gly Arg Arg Arg Ser Gly Asn Arg Asp Arg Thr Val Gln Ser Pro Lys  
 465                      470                      475                      480  
 Ser Lys

<210> 129  
 <211> 1663  
 <212> DNA  
 <213> Homo Sapiens

<400> 129  
 aggccttgag ccaactccgg gtgctctgct gtgagtggct gaggcccgag atccacacca 60  
 aggagcagat cctggagcta ctggtgctgg agcagttcct gaccatcctg cccaggagc 120  
 tccaggcctg ggtgcaggag cattgcccgg agagcgctga agaggctgtc actctcctcg 180  
 aagatctgga gcgggaactg gatgagccag gacaccaggt ctcaactcct ccaaacgaac 240  
 agaaaccggt gtgggagaag atatcctcct caggaactgc aaaggaatcc ccgagcagca 300  
 tgcagccaca gcccttgag accagtcaca aatacagatc ttgggggccc ctgtacatcc 360  
 aagagtctgg tgaggagcag gagttcgctc aagatccaag aaaggtccga gattgcagat 420  
 tgagtaccca gcacgaggaa tcagcagatg agcagaaagg ttctgaagca gagggggtca 480  
 aaggggatat aatttctgtg attatcgcca ataaacctga ggccagctta gagaggcagt 540  
 gcgtaaacct tgaaaatgaa aaaggaacaa aacccctct tcaaggaggca ggctccaaga 600  
 aaggtagaga atcagttcct actaaacct cccaggaga gagacgttat atatgtgctg 660

aatgtggcaa	agcctttagt	aatagctcaa	atctcaccaa	acacaggaga	acacacactg	720
gggagaaacc	ttacgtgtgc	accaagtgtg	ggaaagcttt	cagccacagc	tcaaacctca	780
ccctccacta	cagaacacac	ttgttggacc	ggccctatga	ctgtaagtgt	ggaaaagctt	840
ttgggcagag	ctcagacctt	cttaaacatc	agagaatgca	cacagaagag	gcgccatata	900
agtgcгаааа	ttgtggcaag	gctttcagcg	ggaaaggcag	cctcattcgt	cactatcgga	960
tcacacttgg	ggagaagcct	tatcagtgtg	acgaatgtgg	gaagagcttc	agtcagcatg	1020
cgggectcag	ctcccaccag	agactccaca	cgggagagaa	gccatatagg	tgtaggaggt	1080
gtgggaaagc	cttcaaccac	agctccaact	tcaataaaca	ccacagaatc	cacaccgggg	1140
aaaagcccta	ctgggtgcat	cactgtggaa	agaccttctg	tagcaagtcc	aatctttcca	1200
aacatcagcg	agtccacact	ggagagggag	aagcaccgta	actttcaagc	gctcctgttg	1260
ttgtcgttgt	tttaaacttt	agaatctgaa	aaccagaaag	aagtcttgtc	attgcagcag	1320
catcgattcc	ggtgatagag	tttgtatcac	tcaacatcag	gggatcgctg	aggagtgcga	1380
gctccacagc	aacatggcag	gcaggaggtc	ctcagaaggc	gtcaggaggt	ttcacactcg	1440
ccagttcact	ggagcagagt	cccttcgcca	cacttagggc	cccagtaagc	catgccagca	1500
ttaccttttg	cgtagttaaa	cagacgtgta	tccagtctag	ttaaggaaga	aacattaaga	1560
ttgttttaatt	tttaacatat	attcaagaat	tttaatttgt	aaagaattga	gccacattga	1620
acacaattga	atgagattca	gaataaactt	ataacatctt	aaa		1663

```
<210> 130
<211> 412
<212> PRT
<213> Homo Sapiens
```

	<400> 130																
Ala	Leu	Ser	Gln	Leu	Arg	Val	Leu	Cys	Cys	Glu	Trp	Leu	Arg	Pro	Glu		
1				5					10					15			
Ile	His	Thr	Lys	Glu	Gln	Ile	Leu	Glu	Leu	Leu	Val	Leu	Glu	Gln	Phe		
			20					25					30				
Leu	Thr	Ile	Leu	Pro	Gln	Glu	Leu	Gln	Ala	Trp	Val	Gln	Glu	His	Cys		
	35						40					45					
Pro	Glu	Ser	Ala	Glu	Glu	Ala	Val	Thr	Leu	Leu	Glu	Asp	Leu	Glu	Arg		
	50					55					60						
Glu	Leu	Asp	Glu	Pro	Gly	His	Gln	Val	Ser	Thr	Pro	Pro	Asn	Glu	Gln		
65					70					75				80			
Lys	Pro	Val	Trp	Glu	Lys	Ile	Ser	Ser	Ser	Gly	Thr	Ala	Lys	Glu	Ser		
				85					90					95			
Pro	Ser	Ser	Met	Gln	Pro	Gln	Pro	Leu	Glu	Thr	Ser	His	Lys	Tyr	Glu		
			100					105					110				
Ser	Trp	Gly	Pro	Leu	Tyr	Ile	Gln	Glu	Ser	Gly	Glu	Glu	Gln	Glu	Phe		
	115						120					125					
Ala	Gln	Asp	Pro	Arg	Lys	Val	Arg	Asp	Cys	Arg	Leu	Ser	Thr	Gln	His		
	130					135					140						
Glu	Glu	Ser	Ala	Asp	Glu	Gln	Lys	Gly	Ser	Glu	Ala	Glu	Gly	Leu	Lys		
145					150					155				160			
Gly	Asp	Ile	Ile	Ser	Val	Ile	Ile	Ala	Asn	Lys	Pro	Glu	Ala	Ser	Leu		
				165					170					175			
Glu	Arg	Gln	Cys	Val	Asn	Leu	Glu	Asn	Glu	Lys	Gly	Thr	Lys	Pro	Pro		
			180					185					190				
Leu	Gln	Glu	Ala	Gly	Ser	Lys	Lys	Gly	Arg	Glu	Ser	Val	Pro	Thr	Lys		
	195						200					205					
Pro	Thr	Pro	Gly	Glu	Arg	Arg	Tyr	Ile	Cys	Ala	Glu	Cys	Gly	Lys	Ala		
	210					215					220						
Phe	Ser	Asn	Ser	Ser	Asn	Leu	Thr	Lys	His	Arg	Arg	Thr	His	Thr	Gly		
225					230					235					240		
Glu	Lys	Pro	Tyr	Val	Cys	Thr	Lys	Cys	Gly	Lys	Ala	Phe	Ser	His	Ser		

245 250 255  
 Ser Asn Leu Thr Leu His Tyr Arg Thr His Leu Val Asp Arg Pro Tyr  
 260 265 270  
 Asp Cys Lys Cys Gly Lys Ala Phe Gly Gln Ser Ser Asp Leu Leu Lys  
 275 280 285  
 His Gln Arg Met His Thr Glu Glu Ala Pro Tyr Gln Cys Lys Asp Cys  
 290 295 300  
 Gly Lys Ala Phe Ser Gly Lys Gly Ser Leu Ile Arg His Tyr Arg Ile  
 305 310 315 320  
 His Thr Gly Glu Lys Pro Tyr Gln Cys Asn Glu Cys Gly Lys Ser Phe  
 325 330 335  
 Ser Gln His Ala Gly Leu Ser Ser His Gln Arg Leu His Thr Gly Glu  
 340 345 350  
 Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn His Ser Ser  
 355 360 365  
 Asn Phe Asn Lys His His Arg Ile His Thr Gly Glu Lys Pro Tyr Trp  
 370 375 380  
 Cys His His Cys Gly Lys Thr Phe Cys Ser Lys Ser Asn Leu Ser Lys  
 385 390 395 400  
 His Gln Arg Val His Thr Gly Glu Gly Glu Ala Pro  
 405 410

<210> 131  
 <211> 724  
 <212> DNA  
 <213> Homo Sapiens

<400> 131  
 ggagaatgaa aagcagaaag tggcagagct gtattctatc cataactctg gagacaaatc 60  
 tgatattcag gacctcctgg agagtgtcag gctggacaaa gaaaaagcag agactttggc 120  
 tagtagcttg caggaagatc tggctcatat ccgaaatgat gccaatcgat tacaggatgc 180  
 cattgctaag gtagaggatg aataccgagc cttccaagaa gaagctaaga aacaaattga 240  
 agatttgaat atgacgttag aaaaattaag atcagacctg gatgaaaaag aaacagaaag 300  
 gagtgacatg aaagaaacca tctttgaact tgaagatgaa gtagaacaac atcgtgctgt 360  
 gaaacttcat gacaacctca ttatttctga tctagagaat acagttaaaa aactccagga 420  
 ccaaaagcac gacatggaaa gagaaataaa gacactccac agaagacttc gggaagaatc 480  
 tgcggaatgg cggcagtttc aggctgatct ccagactgca gtagtcattg caaatgacat 540  
 taaatctgaa gcccaagagg agattggtga tctaaagcgc cgggtacatg aggctcaaga 600  
 aaaaaatgag aaactcacia aagaattgga ggaaataagt ccgccaagcc agaagangac 660  
 gangccggta ttccantaca tgnatgcccg tgagagagaa tttggcaggc cttaaggcag 720  
 ggaa 724

<210> 132  
 <211> 218  
 <212> PRT  
 <213> Homo Sapiens

<400> 132  
 Glu Asn Glu Lys Gln Lys Val Ala Glu Leu Tyr Ser Ile His Asn Ser  
 1 5 10 15  
 Gly Asp Lys Ser Asp Ile Gln Asp Leu Leu Glu Ser Val Arg Leu Asp  
 20 25 30  
 Lys Glu Lys Ala Glu Thr Leu Ala Ser Ser Leu Gln Glu Asp Leu Ala  
 35 40 45  
 His Thr Arg Asn Asp Ala Asn Arg Leu Gln Asp Ala Ile Ala Lys Val

50                      55                      60  
 Glu Asp Glu Tyr Arg Ala Phe Gln Glu Glu Ala Lys Lys Gln Ile Glu  
 65                      70                      75                      80  
 Asp Leu Asn Met Thr Leu Glu Lys Leu Arg Ser Asp Leu Asp Glu Lys  
                     85                      90                      95  
 Glu Thr Glu Arg Ser Asp Met Lys Glu Thr Ile Phe Glu Leu Glu Asp  
                     100                      105                      110  
 Glu Val Glu Gln His Arg Ala Val Lys Leu His Asp Asn Leu Ile Ile  
                     115                      120                      125  
 Ser Asp Leu Glu Asn Thr Val Lys Lys Leu Gln Asp Gln Lys His Asp  
                     130                      135                      140  
 Met Glu Arg Glu Ile Lys Thr Leu His Arg Arg Leu Arg Glu Glu Ser  
 145                      150                      155                      160  
 Ala Glu Trp Arg Gln Phe Gln Ala Asp Leu Gln Thr Ala Val Val Ile  
                     165                      170                      175  
 Ala Asn Asp Ile Lys Ser Glu Ala Gln Glu Glu Ile Gly Asp Leu Lys  
                     180                      185                      190  
 Arg Arg Val His Glu Ala Gln Glu Lys Asn Glu Lys Leu Thr Lys Glu  
                     195                      200                      205  
 Leu Glu Glu Ile Ser Pro Pro Ser Gln Lys  
                     210                      215

<210> 133  
 <211> 719  
 <212> DNA  
 <213> Homo Sapiens

<400> 133  
 gagaactaca gagctgggtg cggggccaac ggccagaaag tggcgaggag gcagtgcgc 60  
 tgggtggaggg ttgcagaaa caaccagga gaccaaggcg gtgactgtcc atgttcacgg 120  
 ccaggaagtc ctgtcagagg agacggtgca tttaggagcg gagcctgagt cacctaata 180  
 gctgcaggat cctgtgcaaa gctcgacccc cgagcagtct cctgaggaaa ccacacagag 240  
 cccagatctg ggggcaccgg cagagcagcg tccacaccag gaagaggagc tccagaccct 300  
 gcaggagagc gaggtcccag tgcccagga cccagacctt cctgcagaga ggagctctgg 360  
 agactcagag atggttgctc ttcttactgc tctgtcacag ggactggtaa cgttcaagga 420  
 tgtggccgta tgcttttccc aggaccagtg gactgatctg gacccaacac agaaagagtt 480  
 ctatggagaa tatgtcttgg aagaagactg tggaattgtt gtctctctgt catttccaat 540  
 cccagacct gatgagatct ccaggttag agaggaagag cccttgggtc ccagatatcc 600  
 aagagcctna ggagactcaa gagccagaaa tcctgagttt tacctacaca ggagatagga 660  
 gtnaagatga aggaaaatgt ctggagccag gaagaatctg agtttggagg atataccca 719

<210> 134  
 <211> 217  
 <212> PRT  
 <213> Homo Sapiens

<400> 134  
 Arg Thr Thr Glu Leu Gly Ala Gly Pro Thr Ala Arg Lys Trp Arg Gly  
 1                      5                      10                      15  
 Gly Ser Asp Ala Gly Gly Gly Phe Ala Glu Thr Thr Gln Glu Thr Lys  
                     20                      25                      30  
 Ala Val Thr Val His Val His Gly Gln Glu Val Leu Ser Glu Glu Thr  
                     35                      40                      45  
 Val His Leu Gly Ala Glu Pro Glu Ser Pro Asn Glu Leu Gln Asp Pro  
                     50                      55                      60



Val Gln Ser Ser Thr Pro Glu Gln Ser Pro Glu Glu Thr Thr Gln Ser  
 65 70 75 80  
 Pro Asp Leu Gly Ala Pro Ala Glu Gln Arg Pro His Gln Glu Glu Glu  
 85 90 95  
 Leu Gln Thr Leu Gln Glu Ser Glu Val Pro Val Pro Glu Asp Pro Asp  
 100 105 110  
 Leu Pro Ala Glu Arg Ser Ser Gly Asp Ser Glu Met Val Ala Leu Leu  
 115 120 125  
 Thr Ala Leu Ser Gln Gly Leu Val Thr Phe Lys Asp Val Ala Val Cys  
 130 135 140  
 Phe Ser Gln Asp Gln Trp Ser Asp Leu Asp Pro Thr Gln Lys Glu Phe  
 145 150 155 160  
 Tyr Gly Glu Tyr Val Leu Glu Glu Asp Cys Gly Ile Val Val Ser Leu  
 165 170 175  
 Ser Phe Pro Ile Pro Arg Pro Asp Glu Ile Ser Gln Val Arg Glu Glu  
 180 185 190  
 Glu Pro Leu Gly Pro Arg Tyr Pro Arg Ala Gly Asp Ser Arg Ala Arg  
 195 200 205  
 Asn Pro Glu Phe Tyr Leu His Arg Arg  
 210 215

<210> 135  
 <211> 1027  
 <212> DNA  
 <213> Homo Sapiens

<400> 135  
 gcgagggcga gggcgaggcg gtgctcatgg aggaggacct gatccagcag agcctggacg 60  
 actacgacgc cggcagggtac agcccgcggc tgctcacggc gcacgagctg cactggacg 120  
 cgcacgtgct ggaaccggat gaggacctgc agcgctgca gctctcgcg cagcagctcc 180  
 aggtcacggg agacgccagc gagagcgccg aggacatctt cttccggcgg gccaggagg 240  
 gcatgggcca ggacgaggcg cagttcagcg tggagatgcc actcaccggc aaggcctacc 300  
 tgtgggccga caagtaccgg ccacgcaagc cgcgcttctt caaccgcgtg cacacgggct 360  
 tgcagtggaa caagtacaac cagacgcact acgacttga caaccaccg cccaagatcg 420  
 tgcagggata caagttcaac atcttctacc cgcacctcat cgacaagcgc tccacgcccg 480  
 agtacttctt ggaggctgc gccgacaaca aggatttgc catcctgcgc ttcacgcggg 540  
 gccgctacg aggacatcgc tttcaagatc gtcaaccgcg agtgggaata ctngcaccgc 600  
 cagggcttcc gctgccagtt tgccaacggc attttccanc tngctttca cttcaagcgc 660  
 tnccgctatc ggcggtgacg gccctgggga acggcaggcc aggaggggcg agggccacac 720  
 ggggtgccaca gccaggtcg gactggccca gccggcaggc ttgtttttca gcatccgacg 780  
 ggaacatctc caacagaagc aaaacggaaa gtgcctcccg gacccccaga gggccaccca 840  
 acctcaccag tcaccagccc cagaccaccc acagcccctc ccagacaccc cgcctcatct 900  
 ggaaatagtt ccgtttgttt ctctaaaaag acttgtaggt gggaaaaaaa atcttttggt 960  
 ctcattggaat tggcctattg gcaagatcgc atgttttttt aataaacgtt gtatttttaga 1020  
 ataaaaa 1027

<210> 136  
 <211> 299  
 <212> PRT  
 <213> Homo Sapiens

<400> 136  
 Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu Asp Leu Ile Gln Gln  
 1 5 10 15  
 Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser Pro Arg Leu Leu Thr

20 25 30  
 Ala His Glu Leu Pro Leu Asp Ala His Val Leu Glu Pro Asp Glu Asp  
 35 40 45  
 Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu Gln Val Thr Gly Asp  
 50 55 60  
 Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg Arg Ala Lys Glu Gly  
 65 70 75 80  
 Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu Met Pro Leu Thr Gly  
 85 90 95  
 Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro Arg Lys Pro Arg Phe  
 100 105 110  
 Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn Lys Tyr Asn Gln Thr  
 115 120 125  
 His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile Val Gln Gly Tyr Lys  
 130 135 140  
 Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys Arg Ser Thr Pro Glu  
 145 150 155 160  
 Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp Phe Ala Ile Leu Arg  
 165 170 175  
 Phe Thr Arg Gly Arg Leu Arg Gly His Arg Phe Gln Asp Arg Gln Pro  
 180 185 190  
 Arg Val Gly Ile Leu Ala Pro Pro Arg Leu Pro Leu Pro Val Cys Gln  
 195 200 205  
 Arg His Phe Pro Leu Ser Leu Gln Ala Leu Pro Leu Ser Ala Val Thr  
 210 215 220  
 Ala Leu Gly Asn Gly Arg Pro Gly Gly Pro Arg Ala Thr Arg Val Pro  
 225 230 235 240  
 Gln Pro Arg Ser Glu Trp Pro Ser Arg Gln Ala Cys Phe Ser Ala Ser  
 245 250 255  
 Asp Gly Asn Ile Ser Asn Arg Ser Lys Thr Glu Ser Ala Ser Arg Thr  
 260 265 270  
 Pro Arg Gly Pro Pro Asn Leu Thr Ser His Gln Pro Gln Thr Thr His  
 275 280 285  
 Ser Pro Ser Gln Thr Pro Arg Leu Ile Trp Lys  
 290 295

&lt;210&gt; 137

&lt;211&gt; 766

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 137

caaagggttta cacagtaaac aatgtgaatg tgatcaccaa aatacgcaca gaacatctga 60  
 ccgaggagga aaaaaagaga tataaagaca ggaacccgct ggaatctttg ctgggaactg 120  
 tggaacacca atttggtgca caaggggacc tcaccacgga atgtgctact gcaacaacc 180  
 ccacagccat cagcctgat gactacttca atgaagagtt tgatctgaaa gacagggaca 240  
 ttggaaggcc gaaagagctg acgattagaa cacagaagtt taaagcaatg ttgtggatgt 300  
 gtgaagagtt tccccctctct ctggtggagc aggtcattcc catcattgac ctaatggctc 360  
 gaacagagtgc tcattttgca agactgagag atttcatcaa attggaattc ccacctggat 420  
 ttccctgtcaa aatagcttcc cacatcacaa actttgaggt tgatcaatct gtgtttgaaa 480  
 ttcccgaaatc ttactatgtt caagacaatg gcagaaatgt gcatttgcaa gatgaagatt 540  
 acgagataat gcagtttgcc atccagcaaa gtctgctgga gtccagcagg agccaggaac 600  
 ttccaggacc agcttcgaat ggagggatca gccagacaaa cacctatgac gccagtatg 660  
 agagggccat ncaggagagc cttctaccag cacagaaagc ctgtgccccc agcgcccctg 720  
 agcgagacna gccgttttga taatggactt gcagctaagc catgga 766

<210> 138  
 <211> 243  
 <212> PRT  
 <213> Homo Sapiens

<400> 138  
 Lys Val Tyr Thr Val Asn Asn Val Asn Val Ile Thr Lys Ile Arg Thr  
 1 5 10 15  
 Glu His Leu Thr Glu Glu Lys Lys Arg Tyr Lys Asp Arg Asn Pro  
 20 25 30  
 Leu Glu Ser Leu Leu Gly Thr Val Glu His Gln Phe Gly Ala Gln Gly  
 35 40 45  
 Asp Leu Thr Thr Glu Cys Ala Thr Ala Asn Asn Pro Thr Ala Ile Thr  
 50 55 60  
 Pro Asp Glu Tyr Phe Asn Glu Glu Phe Asp Leu Lys Asp Arg Asp Ile  
 65 70 75 80  
 Gly Arg Pro Lys Glu Leu Thr Ile Arg Thr Gln Lys Phe Lys Ala Met  
 85 90 95  
 Leu Trp Met Cys Glu Glu Phe Pro Leu Ser Leu Val Glu Gln Val Ile  
 100 105 110  
 Pro Ile Ile Asp Leu Met Ala Arg Thr Ser Ala His Phe Ala Arg Leu  
 115 120 125  
 Arg Asp Phe Ile Lys Leu Glu Phe Pro Pro Gly Phe Pro Val Lys Ile  
 130 135 140  
 Ala Ser His Ile Thr Asn Phe Glu Val Asp Gln Ser Val Phe Glu Ile  
 145 150 155 160  
 Pro Glu Ser Tyr Tyr Val Gln Asp Asn Gly Arg Asn Val His Leu Gln  
 165 170 175  
 Asp Glu Asp Tyr Glu Ile Met Gln Phe Ala Ile Gln Gln Ser Leu Leu  
 180 185 190  
 Glu Ser Ser Arg Ser Gln Glu Leu Ser Gly Pro Ala Ser Asn Gly Gly  
 195 200 205  
 Ile Ser Gln Thr Asn Thr Tyr Asp Ala Gln Tyr Glu Arg Ala Gln Glu  
 210 215 220  
 Ser Leu Leu Pro Ala Gln Lys Ala Cys Ala Pro Ser Ala Pro Glu Arg  
 225 230 235 240  
 Asp Pro Phe

<210> 139  
 <211> 3060  
 <212> DNA  
 <213> Homo Sapiens

<400> 139  
 ccggggcgga gtgaggcgag agccggctgg ctgagcttag cgtccgagga ggcgggcgcg 60  
 gcggcgggcg cagcgggcggc ggcgggggctg tggggcggtg cggaagcgag aggcgaggag 120  
 cgcgcgggcc gtggccagag tctggcggcg gcctggcgga gcggagagca gcgcccgcgc 180  
 ctgcccgtgc ggaggagccc cgacacaaat agcggcgcgc gcagcccgcg cccttcccc 240  
 cggcgcgccc cgccccgcgc gccgagcgcc ccgctccgcc tcacctgcca ccagggagtg 300  
 ggcgggcatt gttcgccgcc gccgcccgcg cgcggggcca tgggggcccgc ccggcgcccc 360  
 gggccggggc tggcgaggcc gccgcccgcg cgctgagacg ggccccgcgc gcagcccggc 420  
 ggcgcaggta agcccgccg cgccatggtg gacccggttg gcttcgcgga ggctggaag 480  
 gcgcagttcc cggactcaga gccccgcgc atggagctgc gctcagtggg cgacatcgag 540  
 caggagctgg agcgctgcaa ggcctccatt cggcgccctg agcaggaggt gaaccaggag 600

cgcttccgca tgatctacct gcagacgttg ctggccaagg aaaagaagag ctatgaccgg 660  
 cagcgatggg gcttccggcg cgcggcgag gccccgacg ggcctccga gccccgagcg 720  
 tccggtcgc gcccgcagcc agcgcccgcc gacggagcgg acccgccgccc cgcgaggag 780  
 cccgaggccc ggcccgcagc cgaggggttct ccgggtaagg ccaggcccgg gaccgcccgc 840  
 agggccgggg cagccgcgtc gggggaacgg gacgaccggg gacccccgc cagcgtggcg 900  
 gcgctcaggt ccaacttcga gggatccgc aagggccatg gccagcccgg ggcggacgcc 960  
 gagaagccct tctactgaa cgtcagttt caccacgagc gcggcctggg gaaggtcaac 1020  
 gacaaagagg tgcggaccg catcagctcc ctgggcagcc aggccatgca gatggagcgc 1080  
 aaaaagtccc agcacggcg gggctcagc gtgggggatg catccaggcc cccttaccgg 1140  
 ggacgctcct cggagagcag ctggggcgtc gacggcgact acgaggacgc cgagttgaac 1200  
 ccccgtctcc tgaaggacaa cctgatcgac gccaatggcg gtagcaggcc cccttgccg 1260  
 cccctggagt accagcccta ccagagcatc tacgtcgggg gcatgatgga aggggagggc 1320  
 aagggcccgc tctgcgcag ccagagcacc tctgagcagg agaagcgctt tacctggccc 1380  
 cgcaggtcct actcccccg gattttttag gattgcggag gcggctatac cccggactgc 1440  
 agtccaatg agaacctcac ctccagcagc gaggacttct cctctggcca gtccagccgc 1500  
 gtgtcccaa gcccaccac ctaccgcatg ttccgggaca aaagccgctc tccctcgag 1560  
 aactcgcaac agtcttcga cagcagcagt cccccacgc cgcagtggca taagcggcac 1620  
 cggcactgcc cgggtgtcgt gtccgaggcc accatcgtgg gcgtccgcaa gaccgggag 1680  
 atctggccca acgatggcga gggcgcttc catggagacg cagatggctc gttcggaaca 1740  
 ccacctggat acggctgcgc tgcagaccgg gcagaggagc agcgccggca ccaagatggg 1800  
 ctgcccata ttgatgactc gccctcctca tcgccccacc tcagcagcaa gggcaggggc 1860  
 agccgggatg cgtgggtctc gggagccctg gactccacta aagcagtgga gctggacttg 1920  
 gaaaagggtc tggagatgag aaaatgggtc ctgtcgggaa tcctggctag cgaggagact 1980  
 tacctgagcc acctggaggc actgctgctg cccatgaagc ctttgaaagc cgctgccacc 2040  
 acctctcagc cgggtgctgac gactcagcag atcgagacca tcttcttcaa agtgctgag 2100  
 ctctacgaga tccacaagga gttctatgat gggctcttcc cccgcgtgca gcagtggagc 2160  
 caccagcagc ggggtggcga cctcttccag aagctggcca gccagctggg tgtgtaccgg 2220  
 gccttcgtgg acaactacgg agttgccatg gaaatggctg agaagtgtg tcaggccaat 2280  
 gctcagtttg cagaaatctc cgagaacctg agagccagaa gcaacaaaga tgccaaggat 2340  
 ccaacgacca agaactctct ggaaactctg ctctacaagc ctgtggaccg tgtgacgagg 2400  
 agcagctggt tcttccatga cttgtgaag cacactcctg ccagccacc tgaccacccc 2460  
 ttgtgcagg acgcccctcg catctcacag aacttctgt ccagcatcaa tgaggagatc 2520  
 acaccccgac ggcagttccat gacggtgaag aagggagagc accggcagct gctgaaggac 2580  
 agcttcagtg tggagctggg ggagggggcc cgcaagctgc gccacgtctt cctgttcacc 2640  
 gagctgcttc tctgcaccaa gctcaagaag cagagcggag gcaaaacgca gcagtatgac 2700  
 tgcaaatggt acattccgct cacggatctc agcttccaga tgggtgatga actggaggca 2760  
 gtgcccaca tccccctggt gcccgatgag gagctggagc ctttgaagat caagatctcc 2820  
 cagatcaaga gtgacatcca gagagagaag agggcgaaac agggcagcaa ggctacggag 2880  
 aggctgaaga agaagctgtc ggagcaggag tcactgctgc tgcttatgtc tcccagcatg 2940  
 gccttcaggg tgacagccg caacggcaag agttacacgt tctgatctc ctctgactat 3000  
 gagcgtgcag agtggaggga gaacatccgg gacgagcaga agaagtgtt cagaagcttc 3060

&lt;210&gt; 140

&lt;211&gt; 872

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 140

Met Val Asp Pro Val Gly Phe Ala Glu Ala Trp Lys Ala Gln Phe Pro  
 1 5 10 15  
 Asp Ser Glu Pro Pro Arg Met Glu Leu Arg Ser Val Gly Asp Ile Glu  
 20 25 30  
 Gln Glu Leu Glu Arg Cys Lys Ala Ser Ile Arg Arg Leu Glu Gln Glu  
 35 40 45  
 Val Asn Gln Glu Arg Phe Arg Met Ile Tyr Leu Gln Thr Leu Leu Ala

50 55 60  
 Lys Glu Lys Lys Ser Tyr Asp Arg Gln Arg Trp Gly Phe Arg Arg Ala  
 65 70 75 80  
 Ala Gln Ala Pro Asp Gly Ala Ser Glu Pro Arg Ala Ser Ala Ser Arg  
 85 90 95  
 Pro Gln Pro Ala Pro Ala Asp Gly Ala Asp Pro Pro Pro Ala Glu Glu  
 100 105 110  
 Pro Glu Ala Arg Pro Asp Gly Glu Gly Ser Pro Gly Lys Ala Arg Pro  
 115 120 125  
 Gly Thr Ala Arg Arg Pro Gly Ala Ala Ala Ser Gly Glu Arg Asp Asp  
 130 135 140  
 Arg Gly Pro Pro Ala Ser Val Ala Ala Leu Arg Ser Asn Phe Glu Arg  
 145 150 155 160  
 Ile Arg Lys Gly His Gly Gln Pro Gly Ala Asp Ala Glu Lys Pro Phe  
 165 170 175  
 Tyr Val Asn Val Glu Phe His His Glu Arg Gly Leu Val Lys Val Asn  
 180 185 190  
 Asp Lys Glu Val Ser Asp Arg Ile Ser Ser Leu Gly Ser Gln Ala Met  
 195 200 205  
 Gln Met Glu Arg Lys Lys Ser Gln His Gly Ala Gly Ser Ser Val Gly  
 210 215 220  
 Asp Ala Ser Arg Pro Pro Tyr Arg Gly Arg Ser Ser Glu Ser Ser Cys  
 225 230 235 240  
 Gly Val Asp Gly Asp Tyr Glu Asp Ala Glu Leu Asn Pro Arg Phe Leu  
 245 250 255  
 Lys Asp Asn Leu Ile Asp Ala Asn Gly Gly Ser Arg Pro Pro Trp Pro  
 260 265 270  
 Pro Leu Glu Tyr Gln Pro Tyr Gln Ser Ile Tyr Val Gly Gly Met Met  
 275 280 285  
 Glu Gly Glu Gly Lys Gly Pro Leu Leu Arg Ser Gln Ser Thr Ser Glu  
 290 295 300  
 Gln Glu Lys Arg Leu Thr Trp Pro Arg Arg Ser Tyr Ser Pro Arg Ser  
 305 310 315 320  
 Phe Glu Asp Cys Gly Gly Gly Tyr Thr Pro Asp Cys Ser Ser Asn Glu  
 325 330 335  
 Asn Leu Thr Ser Ser Glu Glu Asp Phe Ser Ser Gly Gln Ser Ser Arg  
 340 345 350  
 Val Ser Pro Ser Pro Thr Thr Tyr Arg Met Phe Arg Asp Lys Ser Arg  
 355 360 365  
 Ser Pro Ser Gln Asn Ser Gln Gln Ser Phe Asp Ser Ser Ser Pro Pro  
 370 375 380  
 Thr Pro Gln Cys His Lys Arg His Arg His Cys Pro Val Val Val Ser  
 385 390 395 400  
 Glu Ala Thr Ile Val Gly Val Arg Lys Thr Gly Gln Ile Trp Pro Asn  
 405 410 415  
 Asp Gly Glu Gly Ala Phe His Gly Asp Ala Asp Gly Ser Phe Gly Thr  
 420 425 430  
 Pro Pro Gly Tyr Gly Cys Ala Ala Asp Arg Ala Glu Glu Gln Arg Arg  
 435 440 445  
 His Gln Asp Gly Leu Pro Tyr Ile Asp Asp Ser Pro Ser Ser Ser Pro  
 450 455 460  
 His Leu Ser Ser Lys Gly Arg Gly Ser Arg Asp Ala Leu Val Ser Gly  
 465 470 475 480  
 Ala Leu Glu Ser Thr Lys Ala Ser Glu Leu Asp Leu Glu Lys Gly Leu  
 485 490 495

Glu Met Arg Lys Trp Val Leu Ser Gly Ile Leu Ala Ser Glu Glu Thr  
 500 505 510  
 Tyr Leu Ser His Leu Glu Ala Leu Leu Leu Pro Met Lys Pro Leu Lys  
 515 520 525  
 Ala Ala Ala Thr Thr Ser Gln Pro Val Leu Thr Ser Gln Gln Ile Glu  
 530 535 540  
 Thr Ile Phe Phe Lys Val Pro Glu Leu Tyr Glu Ile His Lys Glu Phe  
 545 550 555 560  
 Tyr Asp Gly Leu Phe Pro Arg Val Gln Gln Trp Ser His Gln Gln Arg  
 565 570 575  
 Val Gly Asp Leu Phe Gln Lys Leu Ala Ser Gln Leu Gly Val Tyr Arg  
 580 585 590  
 Ala Phe Val Asp Asn Tyr Gly Val Ala Met Glu Met Ala Glu Lys Cys  
 595 600 605  
 Cys Gln Ala Asn Ala Gln Phe Ala Glu Ile Ser Glu Asn Leu Arg Ala  
 610 615 620  
 Arg Ser Asn Lys Asp Ala Lys Asp Pro Thr Thr Lys Asn Ser Leu Glu  
 625 630 635 640  
 Thr Leu Leu Tyr Lys Pro Val Asp Arg Val Thr Arg Ser Thr Leu Val  
 645 650 655  
 Leu His Asp Leu Lys His Thr Pro Ala Ser His Pro Asp His Pro  
 660 665 670  
 Leu Leu Gln Asp Ala Leu Arg Ile Ser Gln Asn Phe Leu Ser Ser Ile  
 675 680 685  
 Asn Glu Glu Ile Thr Pro Arg Arg Gln Ser Met Thr Val Lys Lys Gly  
 690 695 700  
 Glu His Arg Gln Leu Leu Lys Asp Ser Phe Met Val Glu Leu Val Glu  
 705 710 715 720  
 Gly Ala Arg Lys Leu Arg His Val Phe Leu Phe Thr Glu Leu Leu Leu  
 725 730 735  
 Cys Thr Lys Leu Lys Lys Gln Ser Gly Gly Lys Thr Gln Gln Tyr Asp  
 740 745 750  
 Cys Lys Trp Tyr Ile Pro Leu Thr Asp Leu Ser Phe Gln Met Val Asp  
 755 760 765  
 Glu Leu Glu Ala Val Pro Asn Ile Pro Leu Val Pro Asp Glu Glu Leu  
 770 775 780  
 Asp Ala Leu Lys Ile Lys Ile Ser Gln Ile Lys Ser Asp Ile Gln Arg  
 785 790 795 800  
 Glu Lys Arg Ala Asn Lys Gly Ser Lys Ala Thr Glu Arg Leu Lys Lys  
 805 810 815  
 Lys Leu Ser Glu Gln Glu Ser Leu Leu Leu Leu Met Ser Pro Ser Met  
 820 825 830  
 Ala Phe Arg Val His Ser Arg Asn Gly Lys Ser Tyr Thr Phe Leu Ile  
 835 840 845  
 Ser Ser Asp Tyr Glu Arg Ala Glu Trp Arg Glu Asn Ile Arg Glu Gln  
 850 855 860  
 Gln Lys Lys Cys Phe Arg Ser Phe  
 865 870

&lt;210&gt; 141

&lt;211&gt; 691

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 141

```

gacccctcac actcacctag ccaccatgga catcgccatc caccaccctt ggatccgccg      60
ccccctcttt cctttccact ccccagccg cctctttgac cagttcttgc gagagcacct      120
gttgaggtct gatcttttcc cgacgtctac ttccctgagt cccttctacc ttcggccacc      180
ctccttctct cgggcaccca gctgggttga cactggactc tcagagatgc gcctggagaa      240
ggacaggttc tctgtcaacc tggatgtgaa gcacttctcc ccagaggaaac tcaaagttaa      300
ggtgttggga gatgtgattg aggtgcatgg aaaacatgaa gagcgccagg atgaacatgg      360
tttcatctcc agggagttcc acaggaaata ccgcatocca gctgatgtag accctctcac      420
cattacttca tccctgtcat ctgatggggt cctcactgtg aatggaccaaa ggaaacaggt      480
ctctggccct gagcgacca ttcccatcac ccgtgaagag aagcctgtg tcaccgcagc      540
ccccaagaaa tagatgcctt ttcttgaatt gcatttttta aaacaagaaa gtttccccac      600
cagtgaatga aagtcttgtg actagtgtg aagcttatta atgctaaggg caggcccaaa      660
ttatcaagct aataaaatat cattcagcaa c                                     691

```

<210> 142  
 <211> 175  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 142
Met Asp Ile Ala Ile His His Pro Trp Ile Arg Arg Pro Phe Phe Pro
 1              5              10              15
Phe His Ser Pro Ser Arg Leu Phe Asp Gln Phe Phe Gly Glu His Leu
              20              25              30
Leu Glu Ser Asp Leu Phe Pro Thr Ser Thr Ser Leu Ser Pro Phe Tyr
              35              40              45
Leu Arg Pro Pro Ser Phe Leu Arg Ala Pro Ser Trp Phe Asp Thr Gly
              50              55              60
Leu Ser Glu Met Arg Leu Glu Lys Asp Arg Phe Ser Val Asn Leu Asp
65              70              75              80
Val Lys His Phe Ser Pro Glu Glu Leu Lys Val Lys Val Leu Gly Asp
              85              90              95
Val Ile Glu Val His Gly Lys His Glu Glu Arg Gln Asp Glu His Gly
              100             105             110
Phe Ile Ser Arg Glu Phe His Arg Lys Tyr Arg Ile Pro Ala Asp Val
              115             120             125
Asp Pro Leu Thr Ile Thr Ser Ser Leu Ser Ser Asp Gly Val Leu Thr
              130             135             140
Val Asn Gly Pro Arg Lys Gln Val Ser Gly Pro Glu Arg Thr Ile Pro
145             150             155             160
Ile Thr Arg Glu Glu Lys Pro Ala Val Thr Ala Ala Pro Lys Lys
              165             170             175

```

<210> 143  
 <211> 1300  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 143
atctgctggg aatttcttgg gttgacagct cttggatccc tattttgaac agtggtagtg      60
tcctggatta cttttcagaa agaagtaatc ctttttatga cagaacatgt aataatgaag      120
tggtcaaaat gcagaggcta acattagaac acttgaatca gatggttggg atcgagtaca      180
tccttttgcg tgctcaagag cccattcttt tcatcattcg gaagcaacag cggcagtcctc      240
ctgcccaggt tatccacta gctgattact atatcattgc tggagtgtac tatcaggcac      300
cagacttggg atcagttata aactctagag tgcttactgc agtgcatggg attcagtcag      360
cttttgatga agctatgtca tactgtcgat atcatccttc caaagggtat tgggtggcact      420

```

```

tcaaagatca tgaagagcaa gataaagtca gacctaaagc caaaaggaaa gaagaaccaa      480
gctctatttt tcagagacaa cgtgtggatg ctttactttt agacctcaga caaaaatttc      540
cacccaaatt tgtgcagcta aagcctggag aaaagcctgt tcaagtggat caaacaaga      600
aagaggcaga acctatacca gaaactgtaa aacctgagga gaaggagacc ccnnagaat      660
gtacaaccag accgggagtg ctaaaggccc ccctgaaaaa cggatgagac ttcagtggat      720
actggacaaa agagaagcct ggaagactcc tcatgctagt tatcatacct cagtactgtg      780
gctcttgagc tttgaagtac tttattgtaa cttctcttatt tgtatggaat gcgcttattt      840
tttgaaagga tattaggccg gatgtgggtgg ctcacgcctg taatcccagc actttgggag      900
gccatggcgg gtggatcact tgaggtcaga agttcaagac cagcctgacc aatatggtga      960
aaccocgtct ctactaaaaa tacaaaaatt agccgggctg ggtggcgggc gcccgtagtc     1020
ccagctactc gggaggctga gacaggagac ttgcttgaac ccgggaggtg gaggttgccc     1080
tgagctgatt atcatgctgt tgcactccag cttgggagac agagcgagac tttgtctcaa     1140
aaaagaagaa aagatattac tcccatcatg atttcttggt aatatttgtt atatgtcttc     1200
tgtaaccttt cctctcccgg acttgagcaa cctacacact cacatgttta ctggtagata     1260
tgtttaaaag caaataaaag gtatttgtat atattgaaaa     1300

```

&lt;210&gt; 144

&lt;211&gt; 233

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 144

```

Leu Leu Gly Ile Ser Trp Val Asp Ser Ser Trp Ile Pro Ile Leu Asn
 1             5             10             15
Ser Gly Ser Val Leu Asp Tyr Phe Ser Glu Arg Ser Asn Pro Phe Tyr
 20             25             30
Asp Arg Thr Cys Asn Asn Glu Val Val Lys Met Gln Arg Leu Thr Leu
 35             40             45
Glu His Leu Asn Gln Met Val Gly Ile Glu Tyr Ile Leu Leu His Ala
 50             55             60
Gln Glu Pro Ile Leu Phe Ile Ile Arg Lys Gln Gln Arg Gln Ser Pro
 65             70             75             80
Ala Gln Val Ile Pro Leu Ala Asp Tyr Tyr Ile Ile Ala Gly Val Ile
 85             90             95
Tyr Gln Ala Pro Asp Leu Gly Ser Val Ile Asn Ser Arg Val Leu Thr
100             105             110
Ala Val His Gly Ile Gln Ser Ala Phe Asp Glu Ala Met Ser Tyr Cys
115             120             125
Arg Tyr His Pro Ser Lys Gly Tyr Trp Trp His Phe Lys Asp His Glu
130             135             140
Glu Gln Asp Lys Val Arg Pro Lys Ala Lys Arg Lys Glu Glu Pro Ser
145             150             155             160
Ser Ile Phe Gln Arg Gln Arg Val Asp Ala Leu Leu Leu Asp Leu Arg
165             170             175
Gln Lys Phe Pro Pro Lys Phe Val Gln Leu Lys Pro Gly Glu Lys Pro
180             185             190
Val Gln Val Asp Gln Thr Lys Lys Glu Ala Glu Pro Ile Pro Glu Thr
195             200             205
Val Lys Pro Glu Glu Lys Glu Thr Pro Glu Cys Thr Thr Arg Pro Gly
210             215             220
Val Leu Lys Ala Pro Leu Lys Asn Gly
225             230

```

&lt;210&gt; 145

&lt;211&gt; 1528



&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 145

```

ccccctttt tttttaaaact aaaatggagg ctggttttctt gccttaagga gcccattgcc      60
tttcccgctg aagtctagat gttgacatgt aataaagcgg gcagcaggat ggtggtggat      120
gcggccaaact ccaatggggc tttccagccc gtggtccttc tccatattcg agatgttcct      180
cctgctgac aagagaagct tttatccag aagttacgtc agtgttgctg cctctttgac      240
tttgtttctg atccactaag tgacctaaag tggaaggaag taaaacgagc tgctttaagt      300
gaaatggtag aatatatcac ccataatcgg aatgtgatca cagagcctat ttaccagaa      360
gtagtccata tgtttgcagt taacatgttt cgaacattac caccttcctc caatcctacg      420
ggagcggaa ttgaccggga ggaagatgaa ccaacgttag aagcagcctg gcctcatcta      480
cagcttgttt atgaattttt cttaagattt ttagagtctc cagatttcca acctaatata      540
gcgaagaaat atattgatca gaagtgtgta ttgcagcttt tagagctctt tgacagtgaa      600
gatcctcggg agagagattt tcttaaaacc acccttcaca gaatctatgg gaaattccta      660
ggcttgagag cttacatcag aaaacagata aataatata tttatagggt tatttatgaa      720
acagagcatc ataatggcat agcagagtta ctggaaatat tgggaagtat aattaatgga      780
tttgcttac cactaaaaga agagcacaag attttcttat tgaagggtgt actaccttg      840
caciaagtga aatctctgag tgtctacat cccagctgg catactgtgt agtgcagtt      900
ttagaaaagg acagaccct caggaacca gtggtgatgg cactctcaa atactggcca      960
aagactcaca gtccaaaaga agtaatgttc ttaaacaagt tagaagagat ttagatgtc      1020
attgaacat cagaatttgt gaagatcatg gaacccctct tccggcagtt ggccaaatgt      1080
gtctccagcc cacacttcca ggtggcagag cgagctctct attactggaa taatgaatac      1140
atcatgagtt taatcagtga caacgcagcg aagattctgc ccatcatgtt tcttccttg      1200
taccgcaact caaagaccca ttggaacaag acaatacatg gcttgatata caacgccctg      1260
aagctcttca tggagatgaa ccaaaagcta ttgatgact gtacacaaca gttcaaagca      1320
gagaaactaa aagagaagct aaaaatgaaa gaacgggaag aagcatgggt taaaatagaa      1380
aatctagcca aagccaatcc ccaggtaact aaaaagagaa taacatgaaa aggccaggg      1440
ttacttgaat gtttttataa gataggaata tatgtcttca ccatgggggg ggttcagatt      1500
tcactaacgt tgtatatgaa aatgtctg      1528

```

&lt;210&gt; 146

&lt;211&gt; 449

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 146

```

Met Leu Thr Cys Asn Lys Ala Gly Ser Arg Met Val Val Asp Ala Ala
 1              5              10              15
Asn Ser Asn Gly Pro Phe Gln Pro Val Val Leu Leu His Ile Arg Asp
      20              25              30
Val Pro Pro Ala Asp Gln Glu Lys Leu Phe Ile Gln Lys Leu Arg Gln
      35              40              45
Cys Cys Val Leu Phe Asp Phe Val Ser Asp Pro Leu Ser Asp Leu Lys
      50              55              60
Trp Lys Glu Val Lys Arg Ala Ala Leu Ser Glu Met Val Glu Tyr Ile
65              70              75              80
Thr His Asn Arg Asn Val Ile Thr Glu Pro Ile Tyr Pro Glu Val Val
      85              90              95
His Met Phe Ala Val Asn Met Phe Arg Thr Leu Pro Pro Ser Ser Asn
      100             105             110
Pro Thr Gly Ala Glu Phe Asp Pro Glu Glu Asp Glu Pro Thr Leu Glu
      115             120             125
Ala Ala Trp Pro His Leu Gln Leu Val Tyr Glu Phe Leu Arg Phe
      130             135             140

```

Leu Glu Ser Pro Asp Phe Gln Pro Asn Ile Ala Lys Lys Tyr Ile Asp  
 145 150 155 160  
 Gln Lys Phe Val Leu Gln Leu Leu Glu Leu Phe Asp Ser Glu Asp Pro  
 165 170 175  
 Arg Glu Arg Asp Phe Leu Lys Thr Thr Leu His Arg Ile Tyr Gly Lys  
 180 185 190  
 Phe Leu Gly Leu Arg Ala Tyr Ile Arg Lys Gln Ile Asn Asn Ile Phe  
 195 200 205  
 Tyr Arg Phe Ile Tyr Glu Thr Glu His His Asn Gly Ile Ala Glu Leu  
 210 215 220  
 Leu Glu Ile Leu Gly Ser Ile Ile Asn Gly Phe Ala Leu Pro Leu Lys  
 225 230 235 240  
 Glu Glu His Lys Ile Phe Leu Leu Lys Val Leu Leu Pro Leu His Lys  
 245 250 255  
 Val Lys Ser Leu Ser Val Tyr His Pro Gln Leu Ala Tyr Cys Val Val  
 260 265 270  
 Gln Phe Leu Glu Lys Asp Ser Thr Leu Thr Glu Pro Val Val Met Ala  
 275 280 285  
 Leu Leu Lys Tyr Trp Pro Lys Thr His Ser Pro Lys Glu Val Met Phe  
 290 295 300  
 Leu Asn Glu Leu Glu Glu Ile Leu Asp Val Ile Glu Pro Ser Glu Phe  
 305 310 315 320  
 Val Lys Ile Met Glu Pro Leu Phe Arg Gln Leu Ala Lys Cys Val Ser  
 325 330 335  
 Ser Pro His Phe Gln Val Ala Glu Arg Ala Leu Tyr Tyr Trp Asn Asn  
 340 345 350  
 Glu Tyr Ile Met Ser Leu Ile Ser Asp Asn Ala Ala Lys Ile Leu Pro  
 355 360 365  
 Ile Met Phe Pro Ser Leu Tyr Arg Asn Ser Lys Thr His Trp Asn Lys  
 370 375 380  
 Thr Ile His Gly Leu Ile Tyr Asn Ala Leu Lys Leu Phe Met Glu Met  
 385 390 395 400  
 Asn Gln Lys Leu Phe Asp Asp Cys Thr Gln Gln Phe Lys Ala Glu Lys  
 405 410 415  
 Leu Lys Glu Lys Leu Lys Met Lys Glu Arg Glu Glu Ala Trp Val Lys  
 420 425 430  
 Ile Glu Asn Leu Ala Lys Ala Asn Pro Gln Val Leu Lys Lys Arg Ile  
 435 440 445  
 Thr

<210> 147  
 <211> 1580  
 <212> DNA  
 <213> Homo Sapiens

<400> 147  
 atccccctcgg gttttccctca gtctccacgt acgtccctca aagcgcgtcc taaaaccctgg 60  
 ataaccggag cgctcccat ggaccacacg gagggcttgc ccgcggagga gccgcctgag 120  
 catgctccat cgcctgggaa atttggtgag cggcctccac ctaaaccgact tactaggga 180  
 gctatgcaaa attatttaaa agagcgaggg gatcaaacag tacttattct tcatgcaaaa 240  
 gttgcacaga agtcatatgg aaatgaaaaa aggtttttt gccacctcc ttgtgtatat 300  
 cttatgggca gcggatggaa gaaaaaaaaa gaacaaatgg aacgcgatgg ttgttctgaa 360  
 caagagtctc aaccgtgtgc atttattggg ataggaaata gtgaccaaga aatgcagcag 420  
 ctaaacttgg aaggaaagaa ctattgcaca gccaaaacat tgtatatatc tgactcagac 480

```

aagcgaaagc acttcatttt ttctgtaaag atgttctatg gcaacagtga tgacattggt      540
gtgttctctca gcaagcggat aaaagtcata tccaaacctt ccaaaaagaa gcagtcattg      600
aaaaatgctg acttatgcat tgcctcagga acaaaggtgg ctctgttttaa tcgactacga      660
tcccagacag ttagtaccag atacttgcat gtagaaggag gtaattttca tgccagtcca      720
cagcagtggg gagccttttt tattcatctc ttggatgatg atgaatcaga aggagaagaa      780
ttcacagtcc gagatgtcta catccattat ggacaaacat gcaaacttgt gtgctcagtt      840
actggcatgg cactcccaag attgataatt atgaaagttg ataagcatac cgcattattg      900
gatgcagatg atcctgtgtc acaactccat aaatgtgcat ttaccttaa ggatacagaa      960
agaatgtatt tgtgcctttc tcaagaaaga ataattcaat ttcaggccac tccatgtcca     1020
aaagaaccaa ataaagagat gataaatgat ggcgcttcct ggacaatcat tagcacagat     1080
aaggcagagt atacatttta tgaggggaatg ggccctgtcc ttgccccagt cactcctgtg     1140
cctgtggtag agagccttca gttgaatggc ggtggggacg tagcaatgct tgaacttaca     1200
ggacagaatt tcaactccaa tttacgagtg tggtttgggg atgtagaagc tgaactatg     1260
tacaggtgtg gagagagtat gctctgtgtc gtcccagaca tttctgcatt ccgagaaggt     1320
tggagatggg tccggcaacc agtccaggtt ccagtaactt tgggccgaaa tgatggaatc     1380
atattattcca ccagccttac ctttacctac acaccagaac cagggccaag gccacattgc     1440
agtgtagcag gagcaatcct tccagccaat tcaagccagg tgccccctaa cgaatcaaac     1500
acaaacagcg aggggaagtta cacaaacgcc agcacaat caaccagtgt cacatcatct     1560
acagccacag tggatccta

```

&lt;210&gt; 148

&lt;211&gt; 500

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 148

```

Met Asp His Thr Glu Gly Leu Pro Ala Glu Glu Pro Pro Ala His Ala
 1           5           10           15
Pro Ser Pro Gly Lys Phe Gly Glu Arg Pro Pro Lys Arg Leu Thr
 20           25           30
Arg Glu Ala Met Arg Asn Tyr Leu Lys Glu Arg Gly Asp Gln Thr Val
 35           40           45
Leu Ile Leu His Ala Lys Val Ala Gln Lys Ser Tyr Gly Asn Glu Lys
 50           55           60
Arg Phe Phe Cys Pro Pro Pro Cys Val Tyr Leu Met Gly Ser Gly Trp
 65           70           75           80
Lys Lys Lys Lys Glu Gln Met Glu Arg Asp Gly Cys Ser Glu Gln Glu
 85           90           95
Ser Gln Pro Cys Ala Phe Ile Gly Ile Gly Asn Ser Asp Gln Glu Met
100           105           110
Gln Gln Leu Asn Leu Glu Gly Lys Asn Tyr Cys Thr Ala Lys Thr Leu
115           120           125
Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Ile Phe Ser Val Lys
130           135           140
Met Phe Tyr Gly Asn Ser Asp Asp Ile Gly Val Phe Leu Ser Lys Arg
145           150           155           160
Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser Leu Lys Asn
165           170           175
Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu Phe Asn Arg
180           185           190
Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val Glu Gly Gly
195           200           205
Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe Ile His Leu
210           215           220
Leu Asp Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val Arg Asp Val

```

225                      230                      235                      240  
 Tyr Ile His Tyr Gly Gln Thr Cys Lys Leu Val Cys Ser Val Thr Gly  
                                  245                      250                      255  
 Met Ala Leu Pro Arg Leu Ile Ile Met Lys Val Asp Lys His Thr Ala  
                                  260                      265                      270  
 Leu Leu Asp Ala Asp Asp Pro Val Ser Gln Leu His Lys Cys Ala Phe  
                                  275                      280                      285  
 Tyr Leu Lys Asp Thr Glu Arg Met Tyr Leu Cys Leu Ser Gln Glu Arg  
                                  290                      295                      300  
 Ile Ile Gln Phe Gln Ala Thr Pro Cys Pro Lys Glu Pro Asn Lys Glu  
 305                                   310                                   315                                   320  
 Met Ile Asn Asp Gly Ala Ser Trp Thr Ile Ile Ser Thr Asp Lys Ala  
                                  325                                   330                                   335  
 Glu Tyr Thr Phe Tyr Glu Gly Met Gly Pro Val Leu Ala Pro Val Thr  
                                  340                                   345                                   350  
 Pro Val Pro Val Val Glu Ser Leu Gln Leu Asn Gly Gly Gly Asp Val  
                                  355                                   360                                   365  
 Ala Met Leu Glu Leu Thr Gly Gln Asn Phe Thr Pro Asn Leu Arg Val  
                                  370                                   375                                   380  
 Trp Phe Gly Asp Val Glu Ala Glu Thr Met Tyr Arg Cys Gly Glu Ser  
 385                                   390                                   395                                   400  
 Met Leu Cys Val Val Pro Asp Ile Ser Ala Phe Arg Glu Gly Trp Arg  
                                  405                                   410                                   415  
 Trp Val Arg Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp  
                                  420                                   425                                   430  
 Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro  
                                  435                                   440                                   445  
 Gly Pro Arg Pro His Cys Ser Val Ala Gly Ala Ile Leu Pro Ala Asn  
                                  450                                   455                                   460  
 Ser Ser Gln Val Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser  
 465                                   470                                   475                                   480  
 Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser Val Thr Ser Ser Thr Ala  
                                  485                                   490                                   495  
 Thr Val Val Ser  
                                  500

&lt;210&gt; 149

&lt;211&gt; 1248

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 149

caagatatcg aattccaaat ttgagggcct cccggctctg gcgccggagg gagagctcag 60  
 gccgccatgc gcgacaggac ccacgagctg agacaggggg atgacagctc ggacgaagag 120  
 gacaaggagc gggtcgctg ggtggtgcac ccgggcacgg cacggctggg gagcccggac 180  
 gaggagttct tccacaaggt ccggacaatt cgtcagacta ttgtcaaact gggaataaa 240  
 gtccaggagt tggagaaaca gcaggtcacc atcctggcca cggcccttcc cgaggagagc 300  
 atgaagcagg agctgcagaa cctgcgcgat gagatcaaac agctggggag ggagatccgc 360  
 ctgcagctga aggccataga gcccagaag gaggaagctg atgagaacta taactccgtc 420  
 aacacaagaa tgagaaaaac ccagcatggg gtccgtgtcc agcaattcgt ggagctcatc 480  
 aacaagtgca attcaatgca gtccgaatac cgggagaaga acgtggagcg gattcggagg 540  
 cagctgaaga tcaccaatgc tggcatggtg tctgatgagg agttggatca gatgctggac 600  
 agtgggcaaa gcgaggtgtt tgtgtccaat atccttaagg acacgcaggt gactcgacag 660  
 gccttaaatg agatctcggc ccggcacagt gagatccagc agcttgaacg cagtattcgt 720  
 gagctgcacg acatattcac ttttctggct accgaagtgg agatgcaggg ggagatgatc 780

```

aatcggattg agaagaacat cctgagctca gcggactacg tggaacgtgg gcaggagcac      840
gtcaagacgg ccctggagaa ccagaagaag gtgaggaaga agaaagtctt gattgccatc      900
tgtgtgtcca tcaccgtcgt cctcctagca gtcattcatt gcgtcacagt gggtggataa      960
tgtcgacat  tgttggcact aggagcacca ggaacccagg gcctggcctt ctctcccagc     1020
agcctggggg gcaggcagag cctccagtcg gaccccttcc tcacacactg gcccctatgc     1080
agaagggcag acagttcttc tgggggttggc agctgctcat tcatgatggc ctctccttc      1140
aggcctcaat gcctggggga ggccctgact gtccctgattg gccgggacac acgggtttgt      1200
aaaaaattaa aaaacaaaaa aagagcatag aaaaaaaaaa aaccgagt      1248

```

&lt;210&gt; 150

&lt;211&gt; 297

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 150

```

Met Arg Asp Arg Thr His Glu Leu Arg Gln Gly Asp Asp Ser Ser Asp
 1              5              10              15
Glu Glu Asp Lys Glu Arg Val Ala Leu Val Val His Pro Gly Thr Ala
 20              25              30
Arg Leu Gly Ser Pro Asp Glu Glu Phe Phe His Lys Val Arg Thr Ile
 35              40              45
Arg Gln Thr Ile Val Lys Leu Gly Asn Lys Val Gln Glu Leu Glu Lys
 50              55              60
Gln Gln Val Thr Ile Leu Ala Thr Pro Leu Pro Glu Glu Ser Met Lys
 65              70              75              80
Gln Glu Leu Gln Asn Leu Arg Asp Glu Ile Lys Gln Leu Gly Arg Glu
 85              90              95
Ile Arg Leu Gln Leu Lys Ala Ile Glu Pro Gln Lys Glu Glu Ala Asp
100              105              110
Glu Asn Tyr Asn Ser Val Asn Thr Arg Met Arg Lys Thr Gln His Gly
115              120              125
Val Leu Ser Gln Gln Phe Val Glu Leu Ile Asn Lys Cys Asn Ser Met
130              135              140
Gln Ser Glu Tyr Arg Glu Lys Asn Val Glu Arg Ile Arg Arg Gln Leu
145              150              155              160
Lys Ile Thr Asn Ala Gly Met Val Ser Asp Glu Glu Leu Asp Gln Met
165              170              175
Leu Asp Ser Gly Gln Ser Glu Val Phe Val Ser Asn Ile Leu Lys Asp
180              185              190
Thr Gln Val Thr Arg Gln Ala Leu Asn Glu Ile Ser Ala Arg His Ser
195              200              205
Glu Ile Gln Gln Leu Glu Arg Ser Ile Arg Glu Leu His Asp Ile Phe
210              215              220
Thr Phe Leu Ala Thr Glu Val Glu Met Gln Gly Glu Met Ile Asn Arg
225              230              235              240
Ile Glu Lys Asn Ile Leu Ser Ser Ala Asp Tyr Val Glu Arg Gly Gln
245              250              255
Glu His Val Lys Thr Ala Leu Glu Asn Gln Lys Lys Val Arg Lys Lys
260              265              270
Lys Val Leu Ile Ala Ile Cys Val Ser Ile Thr Val Val Leu Leu Ala
275              280              285
Val Ile Ile Gly Val Thr Val Val Gly
290              295

```

&lt;210&gt; 151

<211> 1953  
 <212> DNA  
 <213> Homo Sapiens

<400> 151  
 acgcctgccca ggagcaagcc gaagagccag ccggccggcg cactccgact ccgagcagtc 60  
 tctgtccttc gacccgagcc ccgcgccctt tccgggaccc ctgccccgcg ggcagcgctg 120  
 ccaacctgcc ggccatggag accccgtccc agcggcgcg caccgcagc ggggcgcagg 180  
 ccagctccac tccgctgtcg cccaccgca tcaccggct gcaggagaag gaggacctgc 240  
 aggagctcaa tgatcgcttg gcggtctaca tcgaccgtgt gcgctcgctg gaaacggaga 300  
 acgcaggggt cgcgcttcgc atcaccgagt ctgaagaggt ggtcagccgc gaggtgtccg 360  
 gcatcaaggc cgctacgag gccgagctcg gggatgccc caagaccctt gactcagtag 420  
 ccaaggagcg cgcgcgctg cagctggagc tgagcaagt gcgtgaggag ttaaggagc 480  
 tgaaagcgcg caataccaag aaggaggggt acctgatagc tgctcaggct cggtgaagg 540  
 acctggaggc tctgctgaac tccaaggagg ccgcaactg cactgctctc agtgagaagc 600  
 gcacgctgga gggcgagctg catgatctgc ggggccaggt ggccaagctt gaggcagccc 660  
 taggtgagcg caagaagcaa cttcaggatg agatgctgcg gcgggtggat gctgagaaca 720  
 ggctgcagac catgaaggag gaactggact tccagaagaa catctacagt gaggagctgc 780  
 gtgagaccaa gcgcgctcat gagaccgac tgggtggagt tgacaatggg aagcagcgtg 840  
 agtttgagag ccggtggcg gatgcgctgc aggaactgag ggcacagcat gaggaccagg 900  
 tggagcagta taagaaggag ctggagaaga cttattctgc caagctggac aatgccaggc 960  
 agtctgctga gaggaacagc aacctgggtg gggctgccc cgaggagctg cagcagtcgc 1020  
 gcacccgcat cgacagcctc tctgcccagc tcagccagct ccagaagcag ctggcagcca 1080  
 aggaggcgaa gcttcgagac ctggaggact cactggccc tgagcgggac accagccggc 1140  
 ggctgctggc ggaaaaggag cgggagatgg ccgagatgcg ggcaaggatg cagcagcagc 1200  
 tggacgagta ccaggagctt ctggacatca agctggccct ggacatggag atccacgcct 1260  
 accgcaagct cttggagggc gaggaggaga ggctacgcct gtccccagc cctacctgc 1320  
 agcgcagccg tggccgtgct tctctcact catcccagc acaggggtgg ggcagcgtca 1380  
 ccaaaaagcg caaactggag tccactgaga gccgcagcag cttctcacag cagcacgca 1440  
 ctagcgggcg cgtggccgtg gaggaggtgg atgaggagg caagtttgtc cggctgcgca 1500  
 acaagtccaa tgaggaccag tccatgggca attggcagat caagcgccag aatggagatg 1560  
 atcccttgct gacttaccgg ttcccaccaa agttcaccct gaaggctggg cagggtgtga 1620  
 cgatctgggc tgcaggagct ggggccaccc acagccccc taccgacctg gtgtggaagg 1680  
 cacagaacac ctggggctgc gggaacagcc tgcgtacggc tctcatcaac tccactgggg 1740  
 aagaagtggc catgcgcaag ctgggtgcgt cagtgaactgt ggttgaggac gacgaggatg 1800  
 aggatggaga tgacctgctc catcaccacc acgtgagtgg tagccgccc tgaggccgag 1860  
 cctgcactgg ggccaccagc caggcctggg ggcagcctc cccagcctc cccgtgccaa 1920  
 aaatcttttc attaaagaat gttttggaac ttt 1953

<210> 152  
 <211> 572  
 <212> PRT  
 <213> Homo Sapiens

<400> 152  
 Met Glu Thr Pro Ser Gln Arg Arg Ala Thr Arg Ser Gly Ala Gln Ala  
 1 5 10 15  
 Ser Ser Thr Pro Leu Ser Pro Thr Arg Ile Thr Arg Leu Gln Glu Lys  
 20 25 30  
 Glu Asp Leu Gln Glu Leu Asn Asp Arg Leu Ala Val Tyr Ile Asp Arg  
 35 40 45  
 Val Arg Ser Leu Glu Thr Glu Asn Ala Gly Leu Arg Leu Arg Ile Thr  
 50 55 60  
 Glu Ser Glu Glu Val Val Ser Arg Glu Val Ser Gly Ile Lys Ala Ala  
 65 70 75 80

Tyr Glu Ala Glu Leu Gly Asp Ala Arg Lys Thr Leu Asp Ser Val Ala  
                     85                    90                    95  
 Lys Glu Arg Ala Arg Leu Gln Leu Glu Leu Ser Lys Val Arg Glu Glu  
                     100                    105                    110  
 Phe Lys Glu Leu Lys Ala Arg Asn Thr Lys Lys Glu Gly Asp Leu Ile  
                     115                    120                    125  
 Ala Ala Gln Ala Arg Leu Lys Asp Leu Glu Ala Leu Leu Asn Ser Lys  
                     130                    135                    140  
 Glu Ala Ala Leu Ser Thr Ala Leu Ser Glu Lys Arg Thr Leu Glu Gly  
 145                    150                    155                    160  
 Glu Leu His Asp Leu Arg Gly Gln Val Ala Lys Leu Glu Ala Ala Leu  
                     165                    170                    175  
 Gly Glu Ala Lys Lys Gln Leu Gln Asp Glu Met Leu Arg Arg Val Asp  
                     180                    185                    190  
 Ala Glu Asn Arg Leu Gln Thr Met Lys Glu Glu Leu Asp Phe Gln Lys  
                     195                    200                    205  
 Asn Ile Tyr Ser Glu Glu Leu Arg Glu Thr Lys Arg Arg His Glu Thr  
                     210                    215                    220  
 Arg Leu Val Glu Ile Asp Asn Gly Lys Gln Arg Glu Phe Glu Ser Arg  
 225                    230                    235                    240  
 Leu Ala Asp Ala Leu Gln Glu Leu Arg Ala Gln His Glu Asp Gln Val  
                     245                    250                    255  
 Glu Gln Tyr Lys Lys Glu Leu Glu Lys Thr Tyr Ser Ala Lys Leu Asp  
                     260                    265                    270  
 Asn Ala Arg Gln Ser Ala Glu Arg Asn Ser Asn Leu Val Gly Ala Ala  
                     275                    280                    285  
 His Glu Glu Leu Gln Gln Ser Arg Ile Arg Ile Asp Ser Leu Ser Ala  
                     290                    295                    300  
 Gln Leu Ser Gln Leu Gln Lys Gln Leu Ala Ala Lys Glu Ala Lys Leu  
 305                    310                    315                    320  
 Arg Asp Leu Glu Asp Ser Leu Ala Arg Glu Arg Asp Thr Ser Arg Arg  
                     325                    330                    335  
 Leu Leu Ala Glu Lys Glu Arg Glu Met Ala Glu Met Arg Ala Arg Met  
                     340                    345                    350  
 Gln Gln Gln Leu Asp Glu Tyr Gln Glu Leu Leu Asp Ile Lys Leu Ala  
                     355                    360                    365  
 Leu Asp Met Glu Ile His Ala Tyr Arg Lys Leu Leu Glu Gly Glu Glu  
                     370                    375                    380  
 Glu Arg Leu Arg Leu Ser Pro Ser Pro Thr Ser Gln Arg Ser Arg Gly  
 385                    390                    395                    400  
 Arg Ala Ser Ser His Ser Ser Gln Thr Gln Gly Gly Gly Ser Val Thr  
                     405                    410                    415  
 Lys Lys Arg Lys Leu Glu Ser Thr Glu Ser Arg Ser Ser Phe Ser Gln  
                     420                    425                    430  
 His Ala Arg Thr Ser Gly Arg Val Ala Val Glu Glu Val Asp Glu Glu  
                     435                    440                    445  
 Gly Lys Phe Val Arg Leu Arg Asn Lys Ser Asn Glu Asp Gln Ser Met  
                     450                    455                    460  
 Gly Asn Trp Gln Ile Lys Arg Gln Asn Gly Asp Asp Pro Leu Leu Thr  
 465                    470                    475                    480  
 Tyr Arg Phe Pro Pro Lys Phe Thr Leu Lys Ala Gly Gln Val Val Thr  
                     485                    490                    495  
 Ile Trp Ala Ala Gly Ala Gly Ala Thr His Ser Pro Pro Thr Asp Leu  
                     500                    505                    510  
 Val Trp Lys Ala Gln Asn Thr Trp Gly Cys Gly Asn Ser Leu Arg Thr

515                      520                      525  
 Ala Leu Ile Asn Ser Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val  
 530                      535                      540  
 Arg Ser Val Thr Val Val Glu Asp Asp Glu Asp Glu Asp Gly Asp Asp  
 545                      550                      555                      560  
 Leu Leu His His His His Val Ser Gly Ser Arg Arg  
                     565                      570

<210> 153  
 <211> 1610  
 <212> DNA  
 <213> Homo Sapiens

<400> 153  
 ctgcaggaat tcggcacgag cggtcacgcc gagccagcgc ctgggcctgg aaccggggcgg 60  
 tagcccccca gtttcgcca ccacctccct accatggacc cccgcaaagt gaacgagctt 120  
 cgggcctttg tgaaaatgtg taagcaggat ccgagcgctt tgtacaccga ggaaatgcgc 180  
 ttcctgaggg agtgggtgga gagcataggt ggtaaagtac cacctgctac tcagaaaagct 240  
 atatcagaag aaaataccaa ggaagaaaaa cctgatagta agaaggtgga ggaagactta 300  
 aaggcagacg aaccatcaag tgaggaaagt gatctagaaa ttgataaaga aggtgtgatt 360  
 gaaccagaca ctgatgctcc tcaagaaatg ggagatgaaa atgcggagat aacggaggag 420  
 atgatggatc aggc aaatga taaaaaagt gctgctattg aagccctaaa tgatggtgaa 480  
 ctccagaaag ccattgactt attcacagat gccatcaagc tgaatcctcg cttggccatt 540  
 ttgtatgcca agagggccag tgtcttcgct aaattacaga agccaaatgc tgccatccga 600  
 gactgtgaca gagccattga aataaatcct gattcagctc agccttaca gtggcggggg 660  
 aaagcacaca gacttctagg ccactgggaa gaagcagccc atgatcttgc ccttgccctgt 720  
 aaattggatt atgatgaaga tgctagtga atgctgaaag aagttcaacc tagggcacag 780  
 aaaattgcag aacatcggag aaagtatgag cga aaacgtg aagagcgaga gatcaaagaa 840  
 agaatagaac gagttaagaa ggctcgagaa gagcatgaga gagcccagag ggaggaagaa 900  
 gccagacgac agtcaggagc tcagtatggc tcttttccag gtggccttcc tgggggaatg 960  
 cctggttaatt ttcccggagg aatgcctgga atgggagggg gcatgcctgg aatggctgga 1020  
 atgcctggac tcaatgaaat tcttagtgat ccagaggctt ttgcagccat gcaggatcca 1080  
 gaagttatgg tggttttcca ggatgtggct cagaacccag caaatatgtc aaaataccag 1140  
 agcaacccaa aggttatgaa tctcatcagt aaattgtcag ccaaatttgg aggtcaagcg 1200  
 taatgtcctt ctgataaata aagcccttgc tgaaggaaaa gcaacctaga tcaccttatg 1260  
 gatgtcgcaa taatacaaac cagtgtacct ctgaccttct catcaagaga gctggggtgc 1320  
 tttgaagata atccctaccc ctctccccc aatgcagctg aagcatttta cagtgggttg 1380  
 ccattagggg attcattcag ataattgttt cctactagga attacaaact ttaaacactt 1440  
 tttaaatctt caaaatattt aaaacaaatt taaagggcct gttaattctt atatttttct 1500  
 ttactaatca ttttggattt ttttctttga attattggca gggaatatac ttatgtatgg 1560  
 aagattactg ctctgagtga aataaaagtt attagtgcga ggcaaacata 1610

<210> 154  
 <211> 369  
 <212> PRT  
 <213> Homo Sapiens

<400> 154  
 Met Asp Pro Arg Lys Val Asn Glu Leu Arg Ala Phe Val Lys Met Cys  
 1                      5                      10                      15  
 Lys Gln Asp Pro Ser Val Leu Tyr Thr Glu Glu Met Arg Phe Leu Arg  
 20                      25                      30  
 Glu Trp Val Glu Ser Ile Gly Gly Lys Val Pro Pro Ala Thr Gln Lys  
 35                      40                      45  
 Ala Ile Ser Glu Glu Asn Thr Lys Glu Glu Lys Pro Asp Ser Lys Lys



50 55 60  
 Val Glu Glu Asp Leu Lys Ala Asp Glu Pro Ser Ser Glu Glu Ser Asp  
 65 70 75 80  
 Leu Glu Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro  
 85 90 95  
 Gln Glu Met Gly Asp Glu Asn Ala Glu Ile Thr Glu Glu Met Met Asp  
 100 105 110  
 Gln Ala Asn Asp Lys Lys Val Ala Ala Ile Glu Ala Leu Asn Asp Gly  
 115 120 125  
 Glu Leu Gln Lys Ala Ile Asp Leu Phe Thr Asp Ala Ile Lys Leu Asn  
 130 135 140  
 Pro Arg Leu Ala Ile Leu Tyr Ala Lys Arg Ala Ser Val Phe Val Lys  
 145 150 155 160  
 Leu Gln Lys Pro Asn Ala Ala Ile Arg Asp Cys Asp Arg Ala Ile Glu  
 165 170 175  
 Ile Asn Pro Asp Ser Ala Gln Pro Tyr Lys Trp Arg Gly Lys Ala His  
 180 185 190  
 Arg Leu Leu Gly His Trp Glu Glu Ala Ala His Asp Leu Ala Leu Ala  
 195 200 205  
 Cys Lys Leu Asp Tyr Asp Glu Asp Ala Ser Ala Met Leu Lys Glu Val  
 210 215 220  
 Gln Pro Arg Ala Gln Lys Ile Ala Glu His Arg Arg Lys Tyr Glu Arg  
 225 230 235 240  
 Lys Arg Glu Glu Arg Glu Ile Lys Glu Arg Ile Glu Arg Val Lys Lys  
 245 250 255  
 Ala Arg Glu Glu His Glu Arg Ala Gln Arg Glu Glu Glu Ala Arg Arg  
 260 265 270  
 Gln Ser Gly Ala Gln Tyr Gly Ser Phe Pro Gly Gly Phe Pro Gly Gly  
 275 280 285  
 Met Pro Gly Asn Phe Pro Gly Gly Met Pro Gly Met Gly Gly Gly Met  
 290 295 300  
 Pro Gly Met Ala Gly Met Pro Gly Leu Asn Glu Ile Leu Ser Asp Pro  
 305 310 315 320  
 Glu Val Leu Ala Ala Met Gln Asp Pro Glu Val Met Val Ala Phe Gln  
 325 330 335  
 Asp Val Ala Gln Asn Pro Ala Asn Met Ser Lys Tyr Gln Ser Asn Pro  
 340 345 350  
 Lys Val Met Asn Leu Ile Ser Lys Leu Ser Ala Lys Phe Gly Gly Gln  
 355 360 365  
 Ala

<210> 155  
 <211> 1323  
 <212> DNA  
 <213> Homo Sapiens

<400> 155  
 cacaaaggca ccaaaccaca aaacgtcaca cgtaaacatc atacgtggca accacaagcc 60  
 aatcagttgg atatttcatt cattggtata catatggact gtaagggtgc tttcaggttg 120  
 cagaaaagat ggaaaaaagg acatgtgcac tctgccccaa agatgtcgaa tataatgtcc 180  
 tgtactttgc acaatcagag aatatagctg ctcatgagaa ttgtttgctg tattcttcag 240  
 gacttggtga atgtgaggat caggatccac ttaatcctga tagaagtttt gatgtggaat 300  
 cagtaaagaa agaaatccag agaggaagga agttgaaatg caaattttgt cataaaagag 360  
 gagccaccgt gggatgtgat ttaaaaaact gtaacaagaa ttaccacttt ttctgtgcca 420

```

agaaggacga cgcagttcca cagtctgatg gagttcgagg aatttataaa ctgctttgcc 480
agcaacatgc tcaattcccg atcatcgctc aaagtgctaa attttcagga gtgaaaagaa 540
aaagaggaag gaagaacccc ctctcaggca atcatgtaca gccacccgaa acaatgaaat 600
gtaatacatt cataagacaa gtgaaagaag agcatggcag acacacagat gcaactgtga 660
aagttccttt tcttaagaaa tgcaagggaa gcaggacttc ttaattactt acttgaagaa 720
atattagnca aagttcattc aattccagaa aaactcatgg atgagactta cttcagaatc 780
agactatgaa gaaatcggga gtgcactttt tgactgtaga ttgttcgaag acacatttgt 840
aaattttcaa gcagcaatag agaaaaaaat tcatgcatct caacaaaggt ggcagcagtt 900
gaaggaagag attgagctac ttcaggactt aaaacaaacc ttgtgctctt ttcaagaaaa 960
tagagatctt atgtcaagtt ctacatcaat atcatccctg tcttattagg gattaccatt 1020
tcctaagcca agagtcattg caaattgcaa tcaggctcaa aaccagagac caggctgtga 1080
aatccacaca tctttagaac tagtcgtctc ctcttggcct cagcagctct tccctgttct 1140
tactggttga cattttgatc actctttgca cactcttggt ttttttgctc actgtcacac 1200
tcccagcacc tagtatgctc agtaaatggt tgtggaataa gtgcataaaa tgttcttaac 1260
ctttgattct acttacagcc catgatagcc tcttagatat aataaatttg gattatacta 1320
aaa 1323

```

&lt;210&gt; 156

&lt;211&gt; 191

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 156

```

Met Glu Lys Arg Thr Cys Ala Leu Cys Pro Lys Asp Val Glu Tyr Asn
 1             5             10             15
Val Leu Tyr Phe Ala Gln Ser Glu Asn Ile Ala Ala His Glu Asn Cys
 20             25             30
Leu Leu Tyr Ser Ser Gly Leu Val Glu Cys Glu Asp Gln Asp Pro Leu
 35             40             45
Asn Pro Asp Arg Ser Phe Asp Val Glu Ser Val Lys Lys Glu Ile Gln
 50             55             60
Arg Gly Arg Lys Leu Lys Cys Lys Phe Cys His Lys Arg Gly Ala Thr
 65             70             75             80
Val Gly Cys Asp Leu Lys Asn Cys Asn Lys Asn Tyr His Phe Phe Cys
 85             90             95
Ala Lys Lys Asp Asp Ala Val Pro Gln Ser Asp Gly Val Arg Gly Ile
100             105             110
Tyr Lys Leu Leu Cys Gln Gln His Ala Gln Phe Pro Ile Ile Ala Gln
115             120             125
Ser Ala Lys Phe Ser Gly Val Lys Arg Lys Arg Gly Arg Lys Lys Pro
130             135             140
Leu Ser Gly Asn His Val Gln Pro Pro Glu Thr Met Lys Cys Asn Thr
145             150             155             160
Phe Ile Arg Gln Val Lys Glu Glu His Gly Arg His Thr Asp Ala Thr
165             170             175
Val Lys Val Pro Phe Leu Lys Lys Cys Lys Gly Ser Arg Thr Ser
180             185             190

```

&lt;210&gt; 157

&lt;211&gt; 4065

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 157

```

atgtcgactg gggacagttt tgagactcga tttgaaaaaa tggacaacct gctgcgggat 60

```

cccaaatcgg	aagtgaattc	ggattgtttg	ctggatggat	tggatgcttt	ggtatatgat	120
ttggattttc	ctgccttaag	aaaaaacaaa	aatattgaca	actttttaag	cagatataaa	180
gacacaataa	ataaaatcag	agattttacga	atgaaagctg	aagattatga	agtagtgaag	240
gtgattggta	gaggtgcatt	tggagaagtt	caattggtaa	ggcataaatc	caccaggaag	300
gtatatgcta	tgaagcttct	cagcaaattt	gaaatgataa	agagatctga	ttctgctttt	360
ttctgggaag	aaagggacat	catggctttt	gccaacagtc	cttgggttgt	tcagcttttt	420
tatgcattcc	aagatgatcg	ttatctctac	atggtgatgg	aatacatgcc	tggtaggat	480
cttgtaaaact	taatgagcaa	ctatgatgtg	cctgaaaaat	gggcacgatt	ctatactgca	540
gaagtagttc	tgcattgga	tgcaatccat	tccatgggtt	ttattcacag	agatgtgaag	600
cctgataaca	tgctgctgga	taaatctgga	catttgaagt	tagcagattt	tggtagttgt	660
atgaagatga	ataaggaagg	catggtacga	tgtgatacag	cggttggaac	acctgattat	720
atttccctcg	aagtattaaa	atcccaagg	ggtgatgggt	attatggaag	agaatgtgac	780
tgggtgctcg	ttgggggtatt	tttatacgaa	atgcttgtag	gtgatacacc	tttttatgca	840
gattccttgg	ttggaactta	cagtaaaatt	atgaaccata	aaaattcact	tacctttcct	900
gatgataatg	acatatcaaa	agaagcaaaa	aaccttattt	gtgccttcct	tactgacagg	960
gaagtgaagg	tagggcgaaa	tgggttagaa	gaaatcaaac	gacatctctt	cttcaaaaat	1020
gaccagtggg	cttgggaaac	gctccgagac	actgtagcac	cagttgtacc	cgattttaagt	1080
agtgacattg	atactagtaa	ttttgatgac	ttggaagaag	ataaaggaga	ggaagaaaca	1140
ttccctattc	ctaaagcttt	cgttggcaat	caactacctt	ttgtaggatt	tacatattat	1200
agcaatcgta	gatacttata	ttcagcaaat	cctaatagata	acagaactag	ctccaatgca	1260
gataaaagct	tgcaggaaaag	tttgcaaaaa	acaatctata	agctggaaga	acagctgcat	1320
aatgaaatgc	agttaaaaga	tgaatggag	cagaagtga	gaacctcaaa	cataaaacta	1380
gacaagataa	tgaagaattt	ggatgaagag	ggaaatcaaa	gaagaaatct	agaatctaca	1440
gtgtctcaga	ttgagaagga	gaaaatgttg	ctacagcata	gaattaatga	gtaccaaaaga	1500
aaagctgaac	aggaaaatga	gaagagaaga	aatgtagaaa	atgaagtttc	tacattaaag	1560
gatcagttgg	aagacttaaa	gaaagtcagt	cagaattcac	agcttgctaa	tgagaagctg	1620
tcccagttac	aaaagcagct	agaagaagcc	aatgacttac	ttaggacaga	atcggacaca	1680
gctgtaagat	tgaggaagag	tcacacagag	atgagcaagt	caattagtca	gttagagtcc	1740
ctgaacagag	agttgcaaga	gagaaatcga	atttttagaga	attctaagtc	acaaacagac	1800
aaagattatt	accagctgca	agctatatta	gaagctgaac	gaagagacag	aggctcatgat	1860
tctgagatga	ttggagacct	tcaagctcga	attacatctt	tacaagagga	ggtgaagcat	1920
ctcaaacata	atctcgaaaa	agtggaaaga	gaaagaaaag	aggctcaaga	catgcttaat	1980
cactcagaaa	aggaaaagaa	taatttagag	atagatttaa	actacaaact	taaatcatta	2040
caacaacggt	tagaacaaga	ggtaaatgaa	cacaaagtaa	ccaaagctcg	tttaactgac	2100
aaacatcaat	ctattgaaga	ggcaaatgct	gtggcaatgt	gtgagatgga	aaaaaagctg	2160
aaagaagaaa	gagaagctcg	agagaaggct	gaaaatcggg	ttgttcagat	tgagaacacg	2220
tgttccatgc	tagacgttga	tctgaagcaa	tctcagcaga	aactagaaca	tttgactgga	2280
aataaagaaa	ggatggagga	tgaagttaag	aatctaacc	tgcaactgga	gcaggaatca	2340
aaagcgcg	tggtgttaca	aaatgaattg	aagactcaag	catttgaggc	agacaattta	2400
aaaggtttag	aaaagcagat	gaaacaggaa	ataaatactt	tattggaagc	aaagagatta	2460
ttagaatttg	agttagctca	gcttacgaaa	cagtatagag	gaaatgaagg	acagatgcgg	2520
gagctacaag	atcagcttga	agctgagcaa	tatttctcga	cactttataa	aaccaggtta	2580
aaggaaactta	aagaagaaat	tgaagaaaaa	aacagagaaa	atttaaagaa	aatacaggaa	2640
ctacaaaatg	aaaaagaaac	tcttgctact	cagttggatc	tagcagaaac	aaaagctgag	2700
tctgagcagt	tggcgcgagg	ccttctggaa	gaacagtatt	ttgaattgac	gcaagaaagc	2760
aagaaagctg	cttcaagaaa	tagacaagag	attacagata	aagatcacac	tgtagtctcg	2820
cttgaagaag	caaacagcat	gctaaccaaa	gatattgaaa	tattaagaag	agagaatgaa	2880
gagctaacag	agaaaatgaa	gaaggcagag	gaagaatata	aactggagaa	ggaggaggag	2940
atcagtaatc	ttaaaggctgc	ctttgaaaag	aatatcaaca	ctgaacgaac	ccttaaaaca	3000
caggctgtta	acaaattggc	agaaataatg	aatcgaaaag	attttaaaat	tgatagaaag	3060
aaagctaata	cacaagattt	gagaaagaaa	gaaaaggaaa	atcgaaagct	gcaactggaa	3120
ctcaaccaag	aaagagagaa	attcaaccag	atggtagtga	aacatcagaa	ggaactgaat	3180
gacatgcaag	cgcaattggg	agaagaatgt	gcacatagga	atgagcttca	gatgcagttg	3240
gccagcaaa	agagtgatat	tgagcaattg	cgtgctaaac	ttttggacct	ctcggattct	3300
acaagtgttg	ctagttttcc	tagtgctgat	gaaactgatg	gtaacctccc	agagtcaaga	3360

```

attgaagggtt ggctttcagt accaaataga ggaaatatca aacgatatgg ctggaagaaa 3420
cagtatgttg tggtaagcag caaaaaaatt ttgttctata atgacgaaca agataaggag 3480
caatccaatc catctatggt attggacata gataaactgt ttcaagttag acctgtaacc 3540
caaggagatg tgtatagagc tgaaactgaa gaaattccta aaatattcca gatactatat 3600
gcaaatgaag gtgaatgtag aaaagatgta gagatggaac cagtacaaca agctgaaaaa 3660
actaatctcc aaaatcacia aggccatgag tttattccta cactctacca ctttcctgcc 3720
aattgtgatg cctgtgccaa acctctctgg catgttttta agccaccccc tgccctagag 3780
tgtcgaagat gccatgttaa gtgccacaga gatcacttag ataagaaaga ggacttaatt 3840
tgcccatgta aagtaagtta tgatgtaaca tcagcaagag atatgctgct gttagcatgt 3900
tctcaggatg aacaaaaaaa atgggtaact catttagtaa agaaaatccc taagaatcca 3960
ccatctggtt ttgttcgtgc ttcccctcga acgctttcta caagatccac tgcaaatcag 4020
tctttccgga aagtgggtcaa aaatacatct ggaaaaacta gttaa 4065

```

&lt;210&gt; 158

&lt;211&gt; 1354

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 158

```

Met Ser Thr Gly Asp Ser Phe Glu Thr Arg Phe Glu Lys Met Asp Asn
 1             5             10             15
Leu Leu Arg Asp Pro Lys Ser Glu Val Asn Ser Asp Cys Leu Leu Asp
      20             25             30
Gly Leu Asp Ala Leu Val Tyr Asp Leu Asp Phe Pro Ala Leu Arg Lys
      35             40             45
Asn Lys Asn Ile Asp Asn Phe Leu Ser Arg Tyr Lys Asp Thr Ile Asn
      50             55             60
Lys Ile Arg Asp Leu Arg Met Lys Ala Glu Asp Tyr Glu Val Val Lys
      65             70             75             80
Val Ile Gly Arg Gly Ala Phe Gly Glu Val Gln Leu Val Arg His Lys
      85             90             95
Ser Thr Arg Lys Val Tyr Ala Met Lys Leu Leu Ser Lys Phe Glu Met
      100            105            110
Ile Lys Arg Ser Asp Ser Ala Phe Phe Trp Glu Glu Arg Asp Ile Met
      115            120            125
Ala Phe Ala Asn Ser Pro Trp Val Val Gln Leu Phe Tyr Ala Phe Gln
      130            135            140
Asp Asp Arg Tyr Leu Tyr Met Val Met Glu Tyr Met Pro Gly Gly Asp
      145            150            155            160
Leu Val Asn Leu Met Ser Asn Tyr Asp Val Pro Glu Lys Trp Ala Arg
      165            170            175
Phe Tyr Thr Ala Glu Val Val Leu Ala Leu Asp Ala Ile His Ser Met
      180            185            190
Gly Phe Ile His Arg Asp Val Lys Pro Asp Asn Met Leu Leu Asp Lys
      195            200            205
Ser Gly His Leu Lys Leu Ala Asp Phe Gly Thr Cys Met Lys Met Asn
      210            215            220
Lys Glu Gly Met Val Arg Cys Asp Thr Ala Val Gly Thr Pro Asp Tyr
      225            230            235            240
Ile Ser Pro Glu Val Leu Lys Ser Gln Gly Gly Asp Gly Tyr Tyr Gly
      245            250            255
Arg Glu Cys Asp Trp Trp Ser Val Gly Val Phe Leu Tyr Glu Met Leu
      260            265            270
Val Gly Asp Thr Pro Phe Tyr Ala Asp Ser Leu Val Gly Thr Tyr Ser
      275            280            285

```

Lys Ile Met Asn His Lys Asn Ser Leu Thr Phe Pro Asp Asp Asn Asp  
 290 295 300  
 Ile Ser Lys Glu Ala Lys Asn Leu Ile Cys Ala Phe Leu Thr Asp Arg  
 305 310 315 320  
 Glu Val Arg Leu Gly Arg Asn Gly Val Glu Glu Ile Lys Arg His Leu  
 325 330 335  
 Phe Phe Lys Asn Asp Gln Trp Ala Trp Glu Thr Leu Arg Asp Thr Val  
 340 345 350  
 Ala Pro Val Val Pro Asp Leu Ser Ser Asp Ile Asp Thr Ser Asn Phe  
 355 360 365  
 Asp Asp Leu Glu Glu Asp Lys Gly Glu Glu Glu Thr Phe Pro Ile Pro  
 370 375 380  
 Lys Ala Phe Val Gly Asn Gln Leu Pro Phe Val Gly Phe Thr Tyr Tyr  
 385 390 395 400  
 Ser Asn Arg Arg Tyr Leu Ser Ser Ala Asn Pro Asn Asp Asn Arg Thr  
 405 410 415  
 Ser Ser Asn Ala Asp Lys Ser Leu Gln Glu Ser Leu Gln Lys Thr Ile  
 420 425 430  
 Tyr Lys Leu Glu Glu Gln Leu His Asn Glu Met Gln Leu Lys Asp Glu  
 435 440 445  
 Met Glu Gln Lys Cys Arg Thr Ser Asn Ile Lys Leu Asp Lys Ile Met  
 450 455 460  
 Lys Glu Leu Asp Glu Glu Gly Asn Gln Arg Arg Asn Leu Glu Ser Thr  
 465 470 475 480  
 Val Ser Gln Ile Glu Lys Glu Lys Met Leu Leu Gln His Arg Ile Asn  
 485 490 495  
 Glu Tyr Gln Arg Lys Ala Glu Gln Glu Asn Glu Lys Arg Arg Asn Val  
 500 505 510  
 Glu Asn Glu Val Ser Thr Leu Lys Asp Gln Leu Glu Asp Leu Lys Lys  
 515 520 525  
 Val Ser Gln Asn Ser Gln Leu Ala Asn Glu Lys Leu Ser Gln Leu Gln  
 530 535 540  
 Lys Gln Leu Glu Glu Ala Asn Asp Leu Leu Arg Thr Glu Ser Asp Thr  
 545 550 555 560  
 Ala Val Arg Leu Arg Lys Ser His Thr Glu Met Ser Lys Ser Ile Ser  
 565 570 575  
 Gln Leu Glu Ser Leu Asn Arg Glu Leu Gln Glu Arg Asn Arg Ile Leu  
 580 585 590  
 Glu Asn Ser Lys Ser Gln Thr Asp Lys Asp Tyr Tyr Gln Leu Gln Ala  
 595 600 605  
 Ile Leu Glu Ala Glu Arg Arg Asp Arg Gly His Asp Ser Glu Met Ile  
 610 615 620  
 Gly Asp Leu Gln Ala Arg Ile Thr Ser Leu Gln Glu Glu Val Lys His  
 625 630 635 640  
 Leu Lys His Asn Leu Glu Lys Val Glu Gly Glu Arg Lys Glu Ala Gln  
 645 650 655  
 Asp Met Leu Asn His Ser Glu Lys Glu Lys Asn Asn Leu Glu Ile Asp  
 660 665 670  
 Leu Asn Tyr Lys Leu Lys Ser Leu Gln Gln Arg Leu Glu Gln Glu Val  
 675 680 685  
 Asn Glu His Lys Val Thr Lys Ala Arg Leu Thr Asp Lys His Gln Ser  
 690 695 700  
 Ile Glu Glu Ala Lys Ser Val Ala Met Cys Glu Met Glu Lys Lys Leu  
 705 710 715 720  
 Lys Glu Glu Arg Glu Ala Arg Glu Lys Ala Glu Asn Arg Val Val Gln

725 730 735  
 Ile Glu Lys Gln Cys Ser Met Leu Asp Val Asp Leu Lys Gln Ser Gln  
 740 745 750  
 Gln Lys Leu Glu His Leu Thr Gly Asn Lys Glu Arg Met Glu Asp Glu  
 755 760 765  
 Val Lys Asn Leu Thr Leu Gln Leu Glu Gln Glu Ser Asn Lys Arg Leu  
 770 775 780  
 Leu Leu Gln Asn Glu Leu Lys Thr Gln Ala Phe Glu Ala Asp Asn Leu  
 785 790 795 800  
 Lys Gly Leu Glu Lys Gln Met Lys Gln Glu Ile Asn Thr Leu Leu Glu  
 805 810 815  
 Ala Lys Arg Leu Leu Glu Phe Glu Leu Ala Gln Leu Thr Lys Gln Tyr  
 820 825 830  
 Arg Gly Asn Glu Gly Gln Met Arg Glu Leu Gln Asp Gln Leu Glu Ala  
 835 840 845  
 Glu Gln Tyr Phe Ser Thr Leu Tyr Lys Thr Gln Val Lys Glu Leu Lys  
 850 855 860  
 Glu Glu Ile Glu Glu Lys Asn Arg Glu Asn Leu Lys Lys Ile Gln Glu  
 865 870 875 880  
 Leu Gln Asn Glu Lys Glu Thr Leu Ala Thr Gln Leu Asp Leu Ala Glu  
 885 890 895  
 Thr Lys Ala Glu Ser Glu Gln Leu Ala Arg Gly Leu Leu Glu Glu Gln  
 900 905 910  
 Tyr Phe Glu Leu Thr Gln Glu Ser Lys Lys Ala Ala Ser Arg Asn Arg  
 915 920 925  
 Gln Glu Ile Thr Asp Lys Asp His Thr Val Ser Arg Leu Glu Glu Ala  
 930 935 940  
 Asn Ser Met Leu Thr Lys Asp Ile Glu Ile Leu Arg Arg Glu Asn Glu  
 945 950 955 960  
 Glu Leu Thr Glu Lys Met Lys Lys Ala Glu Glu Glu Tyr Lys Leu Glu  
 965 970 975  
 Lys Glu Glu Glu Ile Ser Asn Leu Lys Ala Ala Phe Glu Lys Asn Ile  
 980 985 990  
 Asn Thr Glu Arg Thr Leu Lys Thr Gln Ala Val Asn Lys Leu Ala Glu  
 995 1000 1005  
 Ile Met Asn Arg Lys Asp Phe Lys Ile Asp Arg Lys Lys Ala Asn Thr  
 1010 1015 1020  
 Gln Asp Leu Arg Lys Lys Glu Lys Glu Asn Arg Lys Leu Gln Leu Glu  
 1025 1030 1035 104  
 Leu Asn Gln Glu Arg Glu Lys Phe Asn Gln Met Val Val Lys His Gln  
 1045 1050 1055  
 Lys Glu Leu Asn Asp Met Gln Ala Gln Leu Val Glu Glu Cys Ala His  
 1060 1065 1070  
 Arg Asn Glu Leu Gln Met Gln Leu Ala Ser Lys Glu Ser Asp Ile Glu  
 1075 1080 1085  
 Gln Leu Arg Ala Lys Leu Leu Asp Leu Ser Asp Ser Thr Ser Val Ala  
 1090 1095 1100  
 Ser Phe Pro Ser Ala Asp Glu Thr Asp Gly Asn Leu Pro Glu Ser Arg  
 1105 1110 1115 112  
 Ile Glu Gly Trp Leu Ser Val Pro Asn Arg Gly Asn Ile Lys Arg Tyr  
 1125 1130 1135  
 Gly Trp Lys Lys Gln Tyr Val Val Val Ser Ser Lys Lys Ile Leu Phe  
 1140 1145 1150  
 Tyr Asn Asp Glu Gln Asp Lys Glu Gln Ser Asn Pro Ser Met Val Leu  
 1155 1160 1165

Asp Ile Asp Lys Leu Phe His Val Arg Pro Val Thr Gln Gly Asp Val  
 1170 1175 1180  
 Tyr Arg Ala Glu Thr Glu Glu Ile Pro Lys Ile Phe Gln Ile Leu Tyr  
 1185 1190 1195 1200  
 Ala Asn Glu Gly Glu Cys Arg Lys Asp Val Glu Met Glu Pro Val Gln  
 1205 1210 1215  
 Gln Ala Glu Lys Thr Asn Phe Gln Asn His Lys Gly His Glu Phe Ile  
 1220 1225 1230  
 Pro Thr Leu Tyr His Phe Pro Ala Asn Cys Asp Ala Cys Ala Lys Pro  
 1235 1240 1245  
 Leu Trp His Val Phe Lys Pro Pro Pro Ala Leu Glu Cys Arg Arg Cys  
 1250 1255 1260  
 His Val Lys Cys His Arg Asp His Leu Asp Lys Lys Glu Asp Leu Ile  
 1265 1270 1275 1280  
 Cys Pro Cys Lys Val Ser Tyr Asp Val Thr Ser Ala Arg Asp Met Leu  
 1285 1290 1295  
 Leu Leu Ala Cys Ser Gln Asp Glu Gln Lys Lys Trp Val Thr His Leu  
 1300 1305 1310  
 Val Lys Lys Ile Pro Lys Asn Pro Pro Ser Gly Phe Val Arg Ala Ser  
 1315 1320 1325  
 Pro Arg Thr Leu Ser Thr Arg Ser Thr Ala Asn Gln Ser Phe Arg Lys  
 1330 1335 1340  
 Val Val Lys Asn Thr Ser Gly Lys Thr Ser  
 1345 1350

<210> 159  
 <211> 683  
 <212> DNA  
 <213> Homo Sapiens

<400> 159  
 acaagctgga gttcgcagcct gacagtgagg acaagatctc ggactgtgag gaaggattga 60  
 gtaatgtggc acttgaatgc agtgagccaa gcacaagtgt atctgcttat gaccagttga 120  
 aggcaccggc atccccctggt gctggaaacc cacctgggac cccaaaggga aagagagagc 180  
 tgatgagcaa tggcccaggt tccattattg gtgctaaagc tgggaagaat tctggcaaaa 240  
 agaagggcct taacaatgaa ctgaacaacc ttccagtaat ctccaacatg acggctgcgt 300  
 tagacagttg ctgcgcagca gacggcagtt tggctgctga gatgcctaaa ctggaagcag 360  
 aaggattaat tgacaagaaa aatttaggag ataaagaaaa gggcaaaaaa gctaacaact 420  
 gcaaaacgga caaaaacctc tctaaactga aaagtgcctg gccattgcc cctgccccag 480  
 cccccactcc ccgcagcta atcgctatac ccactgcaac ctttacaacg accaccactg 540  
 ggacaatacc cggactgcc tccctcacia caactgttgt tcaggctaca ccaaagagtc 600  
 ctccgttaaa acccattcaa ccaaagccca caattatggg agagcccatc accgtgaacc 660  
 cagctctggt gtcactcaaa gac 683

<210> 160  
 <211> 227  
 <212> PRT  
 <213> Homo Sapiens

<400> 160  
 Lys Leu Glu Phe Glu Pro Asp Ser Glu Asp Lys Ile Ser Asp Cys Glu  
 1 5 10 15  
 Glu Gly Leu Ser Asn Val Ala Leu Glu Cys Ser Glu Pro Ser Thr Ser  
 20 25 30  
 Val Ser Ala Tyr Asp Gln Leu Lys Ala Pro Ala Ser Pro Gly Ala Gly

```

      35              40              45
Asn Pro Pro Gly Thr Pro Lys Gly Lys Arg Glu Leu Met Ser Asn Gly
  50              55              60
Pro Gly Ser Ile Ile Gly Ala Lys Ala Gly Lys Asn Ser Gly Lys Lys
  65              70              75              80
Lys Gly Leu Asn Asn Glu Leu Asn Asn Leu Pro Val Ile Ser Asn Met
      85              90              95
Thr Ala Ala Leu Asp Ser Cys Ser Ala Ala Asp Gly Ser Leu Ala Ala
      100              105              110
Glu Met Pro Lys Leu Glu Ala Glu Gly Leu Ile Asp Lys Lys Asn Leu
      115              120              125
Gly Asp Lys Glu Lys Gly Lys Lys Ala Asn Asn Cys Lys Thr Asp Lys
      130              135              140
Asn Leu Ser Lys Leu Lys Ser Ala Arg Pro Ile Ala Pro Ala Pro Ala
      145              150              155              160
Pro Thr Pro Pro Gln Leu Ile Ala Ile Pro Thr Ala Thr Phe Thr Thr
      165              170              175
Thr Thr Thr Gly Thr Ile Pro Gly Leu Pro Ser Leu Thr Thr Thr Val
      180              185              190
Val Gln Ala Thr Pro Lys Ser Pro Pro Leu Lys Pro Ile Gln Pro Lys
      195              200              205
Pro Thr Ile Met Gly Glu Pro Ile Thr Val Asn Pro Ala Leu Val Ser
      210              215              220
Leu Lys Asp
      225

```

<210> 161  
 <211> 662  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 161
accacacagca gttgcacttg ctgagcaggc agcttgagga cccaaatggg agcttttcta      60
acgctgagat gactgaactg agtgtggcac agaaaccaga aaaacttttg gagcgctgca      120
agtactggcc tgcttgtaaa aatggggatg agtgtgccta ccatcaccct atctcaccct      180
gcaaagcctt cccaattgt aaatttgctg aaaaatggtt gtttggtcac ccaaattgta      240
aatatgatgc aaagtgtact aaaccagatt gtcccttcac tcatgtgagt agaagaattc      300
cagtactgtc tccaaaacca gttgcaccac cagcaccacc ttccagtagt cagctctgcc      360
gttacttccc tgcttgtaag aagatggaat gtcccttcta tcatccaaa cattgtaggt      420
ttaacactca atgtacaaga ccggactgca cattctacca tcccaccatt aatgtccac      480
cacgacatgc cttgaaatgg attcgacctc aaaccagcga atagcaccca gtctgcctg      540
gcagaagatc atgcagtttg gaagttttca tgtctgatga aagatctcta cagaacttgt      600
caaatctttg aaacttgga tatattgctt tcataatatg aaggtttatt ggctatctaa      660
aa

```

<210> 162  
 <211> 173  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 162
Pro Gln Gln Leu His Leu Leu Ser Arg Gln Leu Glu Asp Pro Asn Gly
  1              5              10              15
Ser Phe Ser Asn Ala Glu Met Ser Glu Leu Ser Val Ala Gln Lys Pro
      20              25              30

```



Glu Lys Leu Leu Glu Arg Cys Lys Tyr Trp Pro Ala Cys Lys Asn Gly  
           35                          40                          45  
 Asp Glu Cys Ala Tyr His His Pro Ile Ser Pro Cys Lys Ala Phe Pro  
           50                          55                          60  
 Asn Cys Lys Phe Ala Glu Lys Cys Leu Phe Val His Pro Asn Cys Lys  
           65                          70                          75                          80  
 Tyr Asp Ala Lys Cys Thr Lys Pro Asp Cys Pro Phe Thr His Val Ser  
                           85                          90                          95  
 Arg Arg Ile Pro Val Leu Ser Pro Lys Pro Val Ala Pro Pro Ala Pro  
                           100                          105                          110  
 Pro Ser Ser Ser Gln Leu Cys Arg Tyr Phe Pro Ala Cys Lys Lys Met  
                           115                          120                          125  
 Glu Cys Pro Phe Tyr His Pro Lys His Cys Arg Phe Asn Thr Gln Cys  
                           130                          135                          140  
 Thr Arg Pro Asp Cys Thr Phe Tyr His Pro Thr Ile Asn Val Pro Pro  
           145                          150                          155                          160  
 Arg His Ala Leu Lys Trp Ile Arg Pro Gln Thr Ser Glu  
                           165                          170

<210> 163  
 <211> 2912  
 <212> DNA  
 <213> Homo Sapiens

<400> 163  
 cagttgcttc agcgtcccgg tgtggctgtg ccgttggtcc tgtgcggtca cttagccaag 60  
 atgcctgagg aaaccagac ccaagaccaa ccgatggagg aggaggagg tggagacgttc 120  
 gcctttcagg cagaaattgc ccagttgatg tcattgatca tcaatacttt ctactcgaac 180  
 aaagagatct ttccgagaga gctcatttca aattcatcag atgcattgga caaaatccgg 240  
 tatgaaactt tgacagatcc cagtaaatta gactctggga aagagctgca tattaacctt 300  
 ataccgaaca aacaagatcg aactctcact attgtggata ctggaattgg aatgaccaag 360  
 gctgacttga tcaataacct tggactatc gccaaagtctg ggaccaaagc gttcatggaa 420  
 gctttgcagg ctggtgcaga tatctctatg attggccagt tcggtgttgg tttttattct 480  
 gcttatttgg ttgctgagaa agtaactgtg atcaccaaac ataacgatga tgagcagtac 540  
 gcttgggagt cctcagcagg gggatcattc acagtgagga cagacacagg tgaacctatg 600  
 ggtcgtggaa caaaagtat cctacacctg aaagaagacc aaactgagta cttggaggaa 660  
 cgaagaataa aggagattgt gaagaaacat tctcagttta ttggatatcc cattactctt 720  
 tttgtggaga aggaactgta taaagaagta agcgtgatg aggctgaaga aaaggaagac 780  
 aaagaagaag aaaaagaaaa agaagagaaa gatcggaag acaaacctga aattgaagat 840  
 gttggttctg atgaggaaga agaaaagaag gatggtgaca agaagaagaa gaagaagatt 900  
 aaggaaaagt acatcgatca agaagagctc aacaaaacaa agcccatctg gaccagaaat 960  
 cccgacgata ttactaatga ggagtacgga gaattctata agagcttgac caatgactgg 1020  
 gaagatcact tggcagtga gcatTTTTca gttgaaggac agttggaatt cagagccctt 1080  
 ctatttgtcc cagcagctgc tccttttgat ctgtttgaaa acagaaagaa aaagaacaat 1140  
 atcaaattgt atgtacgcag agttttcatc atggataact gtgaggagct aatccctgaa 1200  
 tatctgaact tcattagagg ggtggtagac tcggaggatc tcctctaaa catatcccg 1260  
 gagatgttgc aacaaagcaa aattttgaaa gttatcagga agaatttggc caaaaaatgc 1320  
 ttagaactct ttactgaact ggcggaagat aaagagaact acaagaaatt ctatgagcag 1380  
 ttctctaaaa acataaagct tggaatacac gaagactctc aaaatcgga gaagctttca 1440  
 gagctgttaa ggtactacac atctgcctct ggtgatgaga tggtttctct caaggactac 1500  
 tgcaccagaa tgaaggagaa ccagaaacat atctattata tcacaggtga gaccaaggac 1560  
 caggtagcta actcagcctt tgtggaacgt cttcggaac atggcttaga agtgatctat 1620  
 atgattgagc ccattgatga gtactgtgtc caacagctga aggaatttga ggggaagact 1680  
 ttagtgtcag tcaccaaga aggcctggaa cttccagagg atgaagaaga gaaaaagaag 1740  
 caggaagaga aaaaaacaaa gtttgagaac ctctgcaaaa tcatgaaaga catattggag 1800

```

aaaaaagttg aaaaggtggt tgtgtcaaac cgattggtga catctccatg ctgtattgtc 1860
acaagcacat atggctggac agcaaacatg gagagaatca tgaaagctca agccctaaga 1920
gacaactcaa caatgggtta catggcagca aagaaacacc tggagataaa ccctgaccat 1980
tccattattg agaccttaag gcaaaaggca gaggctgata agaacgacaa gtctgtgaag 2040
gatctgggtca tcttgcttta tgaaactgcg ctctgtctt ctggcttcag tctggaagat 2100
ccccagacac atgctaacag gatctacagg atgatcaaac ttggtctggg tattgatgaa 2160
gatgacccta ctgctgatga taccagtgtt gctgtaactg aagaaatgcc accccttgaa 2220
ggagatgacg acacatcacg catggaagaa gtagactaat ctctggctga gggatgactt 2280
acctgttcag tactctacaa ttcctctgat aatatatttt caaggatgtt tttctttatt 2340
tttgtaata ttaaaaagtc tgtatggcat gacaactact ttaaggggaa gataagattt 2400
ctgtctacta agtgatgtg tgatacctta ggcactaaag cagagctagt aatgcttttt 2460
gagtttcatg ttggttcttt cacagatggg gtaacgtgca ctgtaagacg tatgtaacat 2520
gatgttaact ttgtgtggtc taaagtgttt agctgtcaag ccggatgcct aagtagacca 2580
aatcttgtaa ttgaagtgtt ctgagctgta tcttgatgtt tagaaaagta ttcgttacat 2640
cttgtaggat ctactttttg aacttttcat tccctgtagt tgacaattct gcatgtacta 2700
gtcctctaga aataggttaa actgaagcaa cttgatggaa ggatctctcc acagggcttg 2760
ttttccaaag aaaagtattg ttggaggag caaagttaaa agcctaccta agcatatcgt 2820
aaagtgttc aaatactcga gccagtcctt gtggatggaa atgtagtgct cgagtcacat 2880
tctgcttaaa gtgtgaacaa atacagatga gt 2912

```

&lt;210&gt; 164

&lt;211&gt; 732

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 164

```

Met Pro Glu Glu Thr Gln Thr Gln Asp Gln Pro Met Glu Glu Glu Glu
1      5      10      15
Val Glu Thr Phe Ala Phe Gln Ala Glu Ile Ala Gln Leu Met Ser Leu
20     25     30
Ile Ile Asn Thr Phe Tyr Ser Asn Lys Glu Ile Phe Leu Arg Glu Leu
35     40     45
Ile Ser Asn Ser Ser Asp Ala Leu Asp Lys Ile Arg Tyr Glu Thr Leu
50     55     60
Thr Asp Pro Ser Lys Leu Asp Ser Gly Lys Glu Leu His Ile Asn Leu
65     70     75     80
Ile Pro Asn Lys Gln Asp Arg Thr Leu Thr Ile Val Asp Thr Gly Ile
85     90     95
Gly Met Thr Lys Ala Asp Leu Ile Asn Asn Leu Gly Thr Ile Ala Lys
100    105    110
Ser Gly Thr Lys Ala Phe Met Glu Ala Leu Gln Ala Gly Ala Asp Ile
115    120    125
Ser Met Ile Gly Gln Phe Gly Val Gly Phe Tyr Ser Ala Tyr Leu Val
130    135    140
Ala Glu Lys Val Thr Val Ile Thr Lys His Asn Asp Asp Glu Gln Tyr
145    150    155    160
Ala Trp Glu Ser Ser Ala Gly Gly Ser Phe Thr Val Arg Thr Asp Thr
165    170    175
Gly Glu Pro Met Gly Arg Gly Thr Lys Val Ile Leu His Leu Lys Glu
180    185    190
Asp Gln Thr Glu Tyr Leu Glu Glu Arg Arg Ile Lys Glu Ile Val Lys
195    200    205
Lys His Ser Gln Phe Ile Gly Tyr Pro Ile Thr Leu Phe Val Glu Lys
210    215    220
Glu Arg Asp Lys Glu Val Ser Asp Asp Glu Ala Glu Glu Lys Glu Asp

```

225		230		235		240
Lys Glu Glu Glu Lys Glu Lys Glu Glu Lys Glu Ser Glu Asp Lys Pro						
	245		250		255	
Glu Ile Glu Asp Val Gly Ser Asp Glu Glu Glu Glu Lys Lys Asp Gly						
	260		265		270	
Asp Lys Lys Lys Lys Lys Lys Ile Lys Glu Lys Tyr Ile Asp Gln Glu						
	275		280		285	
Glu Leu Asn Lys Thr Lys Pro Ile Trp Thr Arg Asn Pro Asp Asp Ile						
	290		295		300	
Thr Asn Glu Glu Tyr Gly Glu Phe Tyr Lys Ser Leu Thr Asn Asp Trp						
305		310		315		320
Glu Asp His Leu Ala Val Lys His Phe Ser Val Glu Gly Gln Leu Glu						
	325		330		335	
Phe Arg Ala Leu Leu Phe Val Pro Arg Arg Ala Pro Phe Asp Leu Phe						
	340		345		350	
Glu Asn Arg Lys Lys Lys Asn Asn Ile Lys Leu Tyr Val Arg Arg Val						
	355		360		365	
Phe Ile Met Asp Asn Cys Glu Glu Leu Ile Pro Glu Tyr Leu Asn Phe						
	370		375		380	
Ile Arg Gly Val Val Asp Ser Glu Asp Leu Pro Leu Asn Ile Ser Arg						
385		390		395		400
Glu Met Leu Gln Gln Ser Lys Ile Leu Lys Val Ile Arg Lys Asn Leu						
	405		410		415	
Val Lys Lys Cys Leu Glu Leu Phe Thr Glu Leu Ala Glu Asp Lys Glu						
	420		425		430	
Asn Tyr Lys Lys Phe Tyr Glu Gln Phe Ser Lys Asn Ile Lys Leu Gly						
	435		440		445	
Ile His Glu Asp Ser Gln Asn Arg Lys Lys Leu Ser Glu Leu Leu Arg						
	450		455		460	
Tyr Tyr Thr Ser Ala Ser Gly Asp Glu Met Val Ser Leu Lys Asp Tyr						
465		470		475		480
Cys Thr Arg Met Lys Glu Asn Gln Lys His Ile Tyr Tyr Ile Thr Gly						
	485		490		495	
Glu Thr Lys Asp Gln Val Ala Asn Ser Ala Phe Val Glu Arg Leu Arg						
	500		505		510	
Lys His Gly Leu Glu Val Ile Tyr Met Ile Glu Pro Ile Asp Glu Tyr						
	515		520		525	
Cys Val Gln Gln Leu Lys Glu Phe Glu Gly Lys Thr Leu Val Ser Val						
	530		535		540	
Thr Lys Glu Gly Leu Glu Leu Pro Glu Asp Glu Glu Glu Lys Lys Lys						
545		550		555		560
Gln Glu Glu Lys Lys Thr Lys Phe Glu Asn Leu Cys Lys Ile Met Lys						
	565		570		575	
Asp Ile Leu Glu Lys Lys Val Glu Lys Val Val Val Ser Asn Arg Leu						
	580		585		590	
Val Thr Ser Pro Cys Cys Ile Val Thr Ser Thr Tyr Gly Trp Thr Ala						
	595		600		605	
Asn Met Glu Arg Ile Met Lys Ala Gln Ala Leu Arg Asp Asn Ser Thr						
	610		615		620	
Met Gly Tyr Met Ala Ala Lys Lys His Leu Glu Ile Asn Pro Asp His						
625		630		635		640
Ser Ile Ile Glu Thr Leu Arg Gln Lys Ala Glu Ala Asp Lys Asn Asp						
	645		650		655	
Lys Ser Val Lys Asp Leu Val Ile Leu Leu Tyr Glu Thr Ala Leu Leu						
	660		665		670	

Ser Ser Gly Phe Ser Leu Glu Asp Pro Gln Thr His Ala Asn Arg Ile  
675 680 685  
Tyr Arg Met Ile Lys Leu Gly Leu Gly Ile Asp Glu Asp Asp Pro Thr  
690 695 700  
Ala Asp Asp Thr Ser Ala Ala Val Thr Glu Glu Met Pro Pro Leu Glu  
705 710 715 720  
Gly Asp Asp Asp Thr Ser Arg Met Glu Glu Val Asp  
725 730

<210> 165  
<211> 790  
<212> DNA  
<213> Homo Sapiens

<400> 165  
ccgactcaga aatggcggcc tccatgttct acggcaggct agtggccgtg gccacccttc 60  
ggaaccaccg gctcgggacg gccagcggg ctgctgctca ggttctggga agttctggat 120  
tgtttaataa ccattggactc caagtacagc agcaacagca aaggaatctc tctactacatg 180  
aatacatgag tatggaatta ttgcaagaag ctggtgtctc cgttcccaaa ggatatgtgg 240  
caaagtacc agatgaagct tatgcaattg ccaaaaaatt aggttcaaaa gatgtcgtga 300  
taaaggcaca ggttttagct ggtggtagag gaaaaggaac atttgaaagt ggcctcaaag 360  
gaggagtga gatagttttc tctccagaag aagcaaaagc tgtttcttca caaatgattg 420  
ggaaaaaatt gtttaccag caaacgggag aaaagggcag aatatgcaat caagtattgg 480  
tctgtgagcg aaaatatccc aggagagaat actactttgc aataacaatg gaaaggctcat 540  
ttcaaggctc tgtattaata ggaagttcac atggtggtgt caacattgaa gatgttgctg 600  
ctgagctctc tgaagcaata attaaagaac ctattgatat tgaagaaggc atcaaaaagg 660  
aacaagctct tcagcttgca cagaagaatg ggatttcccc taatattgng ggaatcagca 720  
gcaggaaaac atggtcaagc tttacagncn ttttcttgaa atacgatgca acccttgata 780  
ggaaattaaa 790

<210> 166  
<211> 259  
<212> PRT  
<213> Homo Sapiens

<400> 166  
Asp Ser Glu Met Ala Ala Ser Met Phe Tyr Gly Arg Leu Val Ala Val  
1 5 10 15  
Ala Thr Leu Arg Asn His Arg Pro Arg Thr Ala Gln Arg Ala Ala Ala  
20 25 30  
Gln Val Leu Gly Ser Ser Gly Leu Phe Asn Asn His Gly Leu Gln Val  
35 40 45  
Gln Gln Gln Gln Gln Arg Asn Leu Ser Leu His Glu Tyr Met Ser Met  
50 55 60  
Glu Leu Leu Gln Glu Ala Gly Val Ser Val Pro Lys Gly Tyr Val Ala  
65 70 75 80  
Lys Ser Pro Asp Glu Ala Tyr Ala Ile Ala Lys Lys Leu Gly Ser Lys  
85 90 95  
Asp Val Val Ile Lys Ala Gln Val Leu Ala Gly Gly Arg Gly Lys Gly  
100 105 110  
Thr Phe Glu Ser Gly Leu Lys Gly Gly Val Lys Ile Val Phe Ser Pro  
115 120 125  
Glu Glu Ala Lys Ala Val Ser Ser Gln Met Ile Gly Lys Lys Leu Phe  
130 135 140  
Thr Lys Gln Thr Gly Glu Lys Gly Arg Ile Cys Asn Gln Val Leu Val

```
<210> 167
<211> 5307
<212> DNA
<213> Homo Sapiens
```

<400> 167						
gaataacagt	taagtttttg	ggagtaaaaa	ctgttttcaat	ttttgactgt	gttggggggt	60
ggtgctccta	atccctgtgt	tgttaaaggg	tcgactatat	tgtatttttg	aaaattgcta	120
gagagtggac	gtaaagtgtt	ctcactaaac	aaattataac	tatgtgaggt	agtgcataata	180
ttaagtagct	agattttggtc	attccacaat	gtatatgtac	ttcaaaaacat	catgtttgtac	240
atgagaaaca	cagttttatc	tgtttagtcag	ttttaaaaat	aaaaaatatt	ccaactagaa	300
actctgttgt	agtttttgaa	attacaactt	ggaggctttg	aggaactgat	tagaagttctc	360
ctttctgttt	caggcttttca	tatccaaaac	atagactcttt	agaagtaaca	tctgttaatt	420
aattattaat	aaatagtttg	agtcctttatt	aattcatgga	taacttgacc	attttctctc	480
tccttttgct	tagataatcc	cagatcatgg	ccgggcacag	tagctcacgc	ctgtattccc	540
agcagtttg	gaggccgagg	caggcagatc	acttgaactc	aggagtttga	gaccagcttg	600
ggcaacatgg	caaaaccctg	tctctattaa	aaatacaaaa	attagctggg	catggtagtg	660
catgectgta	gtcccagcta	cctgggaggc	tgaggtggga	ggatcgcttg	agcctgggag	720
gttgaggctt	ctgtgcgcga	tgattgtctc	agtgatcacg	ccattgcact	ccagcctggg	780
tgacagagtg	agaccctgtc	tccaaaaaaa	aaaaaaatta	agcaagtagc	agttacaaga	840
ccaaaagtta	ttttcctttt	tttttttctc	tataaaattg	cccatttgga	ccaactctag	900
ttataactta	tttcagtgtc	attaagaaag	ttgatgaata	agtcatatta	ctcagatgtt	960
agtagctatg	cattttattaa	tagtttttatt	tataagtatt	tgcttttact	ctgtttgcaga	1020
ctttttttatg	ctaaaaattag	ctaaaggcaa	attactattt	ctttaaacaat	attttttact	1080
tattttttttt	tttttaatat	tattaggtagc	ttcttgcaag	ggatatgcat	tagcacatac	1140
tcaagaaggg	gaagaaaaga	agcaaaacttc	tggtacatca	aataccagag	gatcaagacg	1200
aaaacctgca	atgacaactc	ctacaaggag	gtctacacgt	aacacaagag	ctgaaacagc	1260
cagtcagttc	cagagatccc	caatatcaga	caattctggg	tgtgatgcc	caggtaacag	1320
taatccatct	ttaagtgttc	cctcttcagc	tgagtcagaa	aagcaaacaa	gacaggctcc	1380
aaaacggaag	tctgtaagaa	gagggaagaaa	accaccttta	ctgaaaaaga	aacttcggag	1440
ctctgtagct	gcccctgaaa	aatcatcttc	caatgattca	gtagatgaag	aaacagcaga	1500
atctgacaca	tcacctgtgt	tagaaaaaga	gcaccaacca	gatgtagaca	gtagtaacat	1560
ttgtactgtg	cagactcatg	tagaaaacca	gtctgtctaat	tgcttgaaaa	gttgcaatga	1620
gcaaatagaa	gaaagtgaga	agcatactgc	aaattatgat	acagaggaaa	gagtaggatac	1680
ttcatcttct	gagtccttgt	ctcaagatct	tcctgtgtcta	gttggtgagg	aagggggaagt	1740
taaaaaactc	gagaatacac	gtatagagcc	taatgttttg	tgtttggaag	gtgagatttc	1800
tgaaaataatt	cttgaaaaag	gagggtatcc	attggaaaag	caagaccaga	tatctggact	1860
ttcacaatca	gaggtaaaga	cagatgtatg	tacagttcat	cttccaaatg	attttctctac	1920
atgtttaaca	tctgaaagca	aagtgtacca	acctgtatct	tgtcccctaa	gtgacttacc	1980

tgagaatgta	gagtcagtgg	ttaatgaaga	aaaaataaca	gagagttccc	tagtagaaat	2040
tactgaacat	aaagatttta	cactaaaaac	agaggagctt	atagagagcc	ccaagttaga	2100
atcttctgag	ggtgaaatta	tacagacagt	ggacagacaa	tctgttaaga	gccagaggt	2160
tcaattgctt	gggcatgttg	aaactgaaga	tgtagaaata	attgcaacat	gtgatacttt	2220
tgggaatgaa	gattttcaata	atattcaaga	ctctgaaaat	aacttactaa	aaaataatct	2280
tctgaacacc	aaattggaaa	aatctttaga	agaaaagaat	gaatcgctga	ccgaacatcc	2340
tagatctaca	gagttgccta	aaacacacat	tgaacagatt	cagaagcatt	ttagtgagga	2400
caacaatgaa	atgataccta	tggagtgtga	ttcattttgc	agtgaccaa	atgaatctga	2460
agttgaacca	tctgtaaatg	ctgatcttaa	acaaatgaat	gaaaattctg	tgacacactg	2520
ttctgaaaat	aatatgcctg	cttctgatct	tgcggatgaa	aagggtgaaa	ctgtttctca	2580
accatctgaa	agcccaaaag	ataccataga	taaaaccaa	aagcctcgta	ctcgaagatc	2640
tagatttcat	tctccatcta	caacttggtc	acccaacaaa	gacactccac	aagaaaagaa	2700
gcggccccag	tctccatctc	ccagaagaga	aactgggaaa	gaaagcagga	agtctcaatc	2760
accatctcct	aagaatgagt	cagccagagg	ccggaaaaaa	tcccgttctc	agtcccaaaa	2820
aaaggatatt	gcaagagaaa	ggaggcaatc	tcagtctcgg	tctccaaaa	gggatactac	2880
tagggaaaagc	agaagatctg	aatcactgtc	cccaagaaga	gaaacttcta	gagagaacaa	2940
aagatctcag	ccaagagtga	aagattcttc	cccaggagaa	aaatccaggt	cccagagcag	3000
agaacgagaa	agtgatagag	atgggcagag	gagagagaga	gaaaggagaa	ccagaaagtg	3060
gtctaggctc	agatctcatt	ctagggtccc	ctcaagatgt	agaacaaaa	gtaagagttc	3120
atcatttgggt	agaattgaca	gagatagtta	ctctccccgg	tggaaaggaa	gatgggcaaa	3180
tgatggttgg	agatgtccac	gaggaaatga	tccgtacaga	aagaatgacc	cagagaaaca	3240
gaatgaaaat	acaagaaaag	aaaaaaatga	catccatcta	gatgctgatg	atccaaattc	3300
tgctgacaaa	catagaaaatg	actgtcccaa	ttggataaca	gaaaaataaa	actctgggcc	3360
tgatccaaga	accagaaaatc	cagaaaagtt	gaaagagtct	cattgggaag	aaaatagaaa	3420
tgaaaattca	ggaaattctt	ggaataaaaa	ctttggttct	ggttgggtat	ctaaccgttg	3480
tagaggcaga	ggcaaccgtg	gcagaggcac	ttacagaagt	agttttgcct	ataaagatca	3540
gaatgaaaat	cgggtggcaa	atcgaaaacc	cctctcaggg	aattcaaaca	gttcagggag	3600
tgaatctttc	aagtttgttg	aacagcaatc	ctataagcga	aaaagtgaac	aggagttctc	3660
atttgatata	ccagcagata	gatctggatg	gcacatctga	tccagctggg	ccgtgagaaa	3720
gacttttgcca	gcagatgtac	aaaactacta	ctcacgcaga	ggcagaaatt	cttcaggtcc	3780
acagtctgga	tggatgaaac	aagaggagga	aacatctgga	caggattcta	gcctaaaaga	3840
ccaaacaaac	cagcaagttg	atggttctca	gctacctata	aatatgatgc	aaccgcaa	3900
gaatgtaatg	cagcaacaaa	tgaatgcaca	acaccagcct	atgaatatct	tcccatatcc	3960
agtgggtgtt	catgtctcct	tgatgaacat	ccaacgcaat	ccatttaaca	ttcatcctca	4020
gtacccttgc	catctccaca	caggagtggc	cctcatgcag	gtagccactc	ctaccagtgt	4080
atctcaggga	ctaccaccac	caccaccccc	tccccacca	tcccaacaag	tcaactacat	4140
tgcttcacaa	ccagatggaa	agcaattgca	gggtattcct	agttcttctc	atgtaagtaa	4200
taacatgagt	acaccagttt	tgctgtctcc	gacagcagcc	ccaggaaata	cgggaatggt	4260
tcaggggacca	agttctggta	atacttcgtc	atcaagtcac	agcaaagcct	ctaagtctgc	4320
tgtaaaattg	gcagaaagca	aagtaagtgt	tgcatgggaa	gccagcgag	atagctcgaa	4380
gacagacaag	aaattgcaaa	ttcaagaaaa	agcagcaca	gaggtaaaat	tggccatcaa	4440
gccattttac	caaaataaag	atatcaccaa	ggaagaatat	aaagaaattg	tacggaaagc	4500
agtagataaa	gtttgtcata	gtaagagtgg	agaagtaaat	tctactaaag	tggcaaatct	4560
ggttaaagcc	tatgtagaca	aatacaaaata	ttcacggaag	gggagccaaa	agaaaactct	4620
ggaagaacct	gtgtctactg	aaaaaaacat	aggctgaaat	ggggaaacgt	gtcaaggaca	4680
ttatcaggat	atctgcaaag	tgcaatttca	acatgtacca	ttaactgaaa	atcatacata	4740
actgtgattg	aaatttggtt	ttgataaaat	tattttttta	acataggata	tgatgttttg	4800
ttctaataaa	atataggtct	gcactgcaac	ttctgtatcc	ttccttcccc	tccaccctcc	4860
cccacaaaat	tcaagggaag	gtaaagggtt	taaaggatg	tgcatcttta	ctaggactgt	4920
ggttatagtg	ggatactgga	aaatgtatag	ctttttgatt	agggcaatgg	agtgcataaa	4980
ttagaaactt	ctaagtgcac	tggttttcaa	agagatatat	ataatgcatt	tattctgtca	5040
ggttaaaata	taaagtatga	tctttatgat	tttttccctc	taattataga	aagttaaata	5100
atgtattacc	atgaaaaatg	tttctaatat	taaatagaac	atatcagttg	caaagtctct	5160
aatgtgtatt	tttaaagcac	atatctgaat	aaattgccta	gatagaaaaa	aaattatcac	5220
gagtaaaatt	tagtgttcaa	aacattgaaa	cactcttcac	ctattgtatg	accaaataaa	5280

ggttatgctg cttgttacgc gaaggcc

5307

<210> 168  
 <211> 1148  
 <212> PRT  
 <213> Homo Sapiens

<400> 168

```

Met Thr Thr Pro Thr Arg Arg Ser Thr Arg Asn Thr Arg Ala Glu Thr
 1          5          10          15
Ala Ser Gln Ser Gln Arg Ser Pro Ile Ser Asp Asn Ser Gly Cys Asp
 20          25          30
Ala Pro Gly Asn Ser Asn Pro Ser Leu Ser Val Pro Ser Ser Ala Glu
 35          40          45
Ser Glu Lys Gln Thr Arg Gln Ala Pro Lys Arg Lys Ser Val Arg Arg
 50          55          60
Gly Arg Lys Pro Pro Leu Leu Lys Lys Lys Leu Arg Ser Ser Val Ala
 65          70          75          80
Ala Pro Glu Lys Ser Ser Ser Asn Asp Ser Val Asp Glu Glu Thr Ala
 85          90          95
Glu Ser Asp Thr Ser Pro Val Leu Glu Lys Glu His Gln Pro Asp Val
 100         105         110
Asp Ser Ser Asn Ile Cys Thr Val Gln Thr His Val Glu Asn Gln Ser
 115         120         125
Ala Asn Cys Leu Lys Ser Cys Asn Glu Gln Ile Glu Glu Ser Glu Lys
 130         135         140
His Thr Ala Asn Tyr Asp Thr Glu Glu Arg Val Gly Ser Ser Ser Ser
 145         150         155         160
Glu Ser Cys Ala Gln Asp Leu Pro Val Leu Val Gly Glu Glu Gly Glu
 165         170         175
Val Lys Lys Leu Glu Asn Thr Gly Ile Glu Ala Asn Val Leu Cys Leu
 180         185         190
Glu Ser Glu Ile Ser Glu Asn Ile Leu Glu Lys Gly Gly Asp Pro Leu
 195         200         205
Glu Lys Gln Asp Gln Ile Ser Gly Leu Ser Gln Ser Glu Val Lys Thr
 210         215         220
Asp Val Cys Thr Val His Leu Pro Asn Asp Phe Pro Thr Cys Leu Thr
 225         230         235         240
Ser Glu Ser Lys Val Tyr Gln Pro Val Ser Cys Pro Leu Ser Asp Leu
 245         250         255
Ser Glu Asn Val Glu Ser Val Val Asn Glu Glu Lys Ile Thr Glu Ser
 260         265         270
Ser Leu Val Glu Ile Thr Glu His Lys Asp Phe Thr Leu Lys Thr Glu
 275         280         285
Glu Leu Ile Glu Ser Pro Lys Leu Glu Ser Ser Glu Gly Glu Ile Ile
 290         295         300
Gln Thr Val Asp Arg Gln Ser Val Lys Ser Pro Glu Val Gln Leu Leu
 305         310         315         320
Gly His Val Glu Thr Glu Asp Val Glu Ile Ile Ala Thr Cys Asp Thr
 325         330         335
Phe Gly Asn Glu Asp Phe Asn Asn Ile Gln Asp Ser Glu Asn Asn Leu
 340         345         350
Leu Lys Asn Asn Leu Leu Asn Thr Lys Leu Glu Lys Ser Leu Glu Glu

```

WO 99/04265

```

      355              360              365
Lys Asn Glu Ser Leu Thr Glu His Pro Arg Ser Thr Glu Leu Pro Lys
      370              375              380
Thr His Ile Glu Gln Ile Gln Lys His Phe Ser Glu Asp Asn Asn Glu
385              390              395              400
Met Ile Pro Met Glu Cys Asp Ser Phe Cys Ser Asp Gln Asn Glu Ser
      405              410              415
Glu Val Glu Pro Ser Val Asn Ala Asp Leu Lys Gln Met Asn Glu Asn
      420              425              430
Ser Val Thr His Cys Ser Glu Asn Asn Met Pro Ser Ser Asp Leu Ala
      435              440              445
Asp Glu Lys Val Glu Thr Val Ser Gln Pro Ser Glu Ser Pro Lys Asp
      450              455              460
Thr Ile Asp Lys Thr Lys Lys Pro Arg Thr Arg Arg Ser Arg Phe His
465              470              475              480
Ser Pro Ser Thr Thr Trp Ser Pro Asn Lys Asp Thr Pro Gln Glu Lys
      485              490              495
Lys Arg Pro Gln Ser Pro Ser Pro Arg Arg Glu Thr Gly Lys Glu Ser
      500              505              510
Arg Lys Ser Gln Ser Pro Ser Pro Lys Asn Glu Ser Ala Arg Gly Arg
      515              520              525
Lys Lys Ser Arg Ser Gln Ser Pro Lys Lys Asp Ile Ala Arg Glu Arg
      530              535              540
Arg Gln Ser Gln Ser Arg Ser Pro Lys Arg Asp Thr Thr Arg Glu Ser
545              550              555              560
Arg Arg Ser Glu Ser Leu Ser Pro Arg Arg Glu Thr Ser Arg Glu Asn
      565              570              575
Lys Arg Ser Gln Pro Arg Val Lys Asp Ser Ser Pro Gly Glu Lys Ser
      580              585              590
Arg Ser Gln Ser Arg Glu Arg Glu Ser Asp Arg Asp Gly Gln Arg Arg
      595              600              605
Glu Arg Glu Arg Arg Thr Arg Lys Trp Ser Arg Ser Arg Ser His Ser
      610              615              620
Arg Ser Pro Ser Arg Cys Arg Thr Lys Ser Lys Ser Ser Ser Phe Gly
625              630              635              640
Arg Ile Asp Arg Asp Ser Tyr Ser Pro Arg Trp Lys Gly Arg Trp Ala
      645              650              655
Asn Asp Gly Trp Arg Cys Pro Arg Gly Asn Asp Arg Tyr Arg Lys Asn
      660              665              670
Asp Pro Glu Lys Gln Asn Glu Asn Thr Arg Lys Glu Lys Asn Asp Ile
      675              680              685
His Leu Asp Ala Asp Asp Pro Asn Ser Ala Asp Lys His Arg Asn Asp
      690              695              700
Cys Pro Asn Trp Ile Thr Glu Lys Ile Asn Ser Gly Pro Asp Pro Arg
705              710              715              720
Thr Arg Asn Pro Glu Lys Leu Lys Glu Ser His Trp Glu Glu Asn Arg
      725              730              735
Asn Glu Asn Ser Gly Asn Ser Trp Asn Lys Asn Phe Gly Ser Gly Trp
      740              745              750
Val Ser Asn Arg Gly Arg Gly Arg Gly Asn Arg Gly Arg Gly Thr Tyr
      755              760              765
Arg Ser Ser Phe Ala Tyr Lys Asp Gln Asn Glu Asn Arg Trp Gln Asn
      770              775              780
Arg Lys Pro Leu Ser Gly Asn Ser Asn Ser Ser Gly Ser Glu Ser Phe
785              790              795              800

```



```
<210> 169
<211> 597
<212> DNA
<213> Homo Sapiens
```

-132-

cgaccgatgc	tcacaattct	gacctcgtaa	ttatataggg	ggtggttttg	gtttctgcgt	300
ctttccctga	ttcagtggca	ggtaacatat	ttcatgtaca	aaatgaactg	caacaccacg	360
gcaacaagg	gacaggccct	caaagtgtc	ggtagggagc	caggaccccg	ccagtggcgt	420
ggggagacac	cgtactaaac	aagcttgcaa	acagcaggca	ccttcctgcc	actgaggagg	480
aagggctggc	taagggaggc	cggggcggag	gaagccaagc	tctgcaggcc	ctgacaaagt	540
cctcccggcc	tccacgcgtc	gccatggcaa	cgcggggtct	gtgctgccc	ggattgg	597

&lt;210&gt; 170

&lt;211&gt; 3344

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 170

ggtacagctg	cgcgtctgcg	ggaatagggtg	cagcggggccc	ttggcggggg	actctgaggg	60
aggagctggg	gacggcgacc	ctaggagagt	tctttggggt	gactttcaag	atggactcta	120
ctctaacagc	aagtgaatc	cggcagcgat	ttatagattt	cttcaagagg	aacgagcata	180
cgtatgttca	ctcgtctgcc	accatcccat	tggatgaccc	cactttgtct	tttgccaatg	240
caggcatgaa	ccagtttaaa	cccattttcc	tgaacacaat	tgacccatct	caccccatgg	300
caaagctgag	cagagctgcc	aatacccaga	agtgcacccg	ggctgggggc	aaacaaaatg	360
acctggacga	tgtgggcaag	gatgtctatc	atcacacctt	cttcgagatg	ctgggctctt	420
ggtcttttgg	agattacttt	aaggaattgg	catgtaagat	ggctctggaa	ctcctcacc	480
aagagtgttg	cattcccat	gaaagacttt	atgttactta	ctttggcggg	gatgaagcag	540
ctggcttaga	agcagatctg	gaatgcaaac	agatctggca	aaatttgggg	ctggatgaca	600
ccaaaatcct	cccaggcaac	atgaaggata	acttctggga	gatgggtgac	acgggcccct	660
gtggtccttg	cagtggatgc	cactacgacc	ggattgggtg	tcgggacgcc	gcacatcttg	720
tcaaccagga	cgacccta	gtgctggaga	tctggaacct	tgtgttcac	cagtataaca	780
gggaagctga	tggcattctg	aaacctcttc	ccaagaaaag	cattgacaca	gggatgggcc	840
tggaaagcact	ggtatctgtg	ctgcagaata	agatgtccaa	ctatgacact	gacctttttg	900
tcccttactt	tgaagccatt	cagaaggcca	caggtgccc	accatacact	gggaaagtgt	960
gtgctgagga	tgcgcatggg	attgacatgg	cctaccgggt	gctggctgac	catgctcggg	1020
ccatcactgt	ggcactggct	gatgggtggc	ggcctgacaa	cacaggcgct	ggatatgtgt	1080
tgagacggat	tctccgcga	gctgtccgat	acgcccata	aaagctcaat	gccagcaggg	1140
gcttctttgc	tacgttagtg	gatgttgcg	tccagtcct	gggagatgca	tttcttgagc	1200
tgaagaagga	cccagacatg	gtgaaggaca	tcattaatga	agaagaggtg	cagtttctca	1260
agactctcag	cagaggcgct	cgcacccctg	acaggaaaat	tcagagcctg	ggagacagca	1320
agaccattcc	cggagacact	gcttggtccc	tctatgacac	ctatgggttt	ccagtggatc	1380
tgactggact	gattgctgaa	gagaagggcc	tgggtgtaga	catggatggc	tttgaagagg	1440
agaggaaact	ggcccagctg	aaatcacagg	gcaaggagc	tgggtgggaa	gacctcatta	1500
tgctggacat	ttacgctatc	gaagagctcc	gggcacgggg	tctggaggtc	acagatgatt	1560
ccccaaagta	caattaccat	ttggactcca	gtggtagcta	tgtatttgag	aacacagtgg	1620
ctacggtgat	ggctctgcgc	agggagaaga	tgttcgtgga	agaggtgtcc	acaggccagg	1680
agtgtggagt	ggtgctggac	aagacctgtt	tctatgctga	gcaaggaggc	cagatctatg	1740
acgaaggcta	cctgggtgaag	gtggatgaca	gcagtgaaga	taaaacagag	tttacagtga	1800
agaatgctca	ggtccgagga	gggtatgtgc	tacacattgg	aacctctac	ggtgacctga	1860
aagtggggga	tcaggtctgg	ctgtttattg	atgagcccc	acgaagaccc	atcatgagca	1920
accacacagc	tacgcacatt	ctgaacttcg	cctgcgctc	agtgcctggg	gaagctgacc	1980
agaaaggctc	attggttgct	cctgaccgcc	tcagatttga	ctttactgcc	aaggagacca	2040
tgteccacca	acagatcaag	aaggctgaag	agattgctaa	tgagatgatt	gaggcagcca	2100
aggccgtcta	taccaggat	tgccccctgg	cagcagcgaa	agccatccag	ggcctacggg	2160
ctgtgtttga	tgagacctat	cctgacctg	tgcgagctgt	ctccattggg	gtcccgtgtg	2220
ccgagttgct	ggatgacccc	tctgggcctg	ctggctccct	gacttctgtt	gagttctgtg	2280
ggggaacgca	cctgcggaac	tcgagtcacg	caggagcttt	tgtgatcgtg	acggaagaag	2340
ccattgccaa	gggtatccgg	aggattgtgg	ctgtcacagg	tgccgaggcc	cagaaggccc	2400
tcaggaaagc	agagagcttg	aagaaatgtc	tctctgtcat	ggaagccaaa	gtgaaggctc	2460
agactgctcc	aaacaaggat	gtgcagaggg	agatcgctga	ccttgagag	gccctggcca	2520

```

ctgcagtcac cccccagtgg cagaaggatg aattgcggga gactctcaaa tccctaaaga 2580
agggtcatgga tgacttggac cgagccagca aagccgatgt ccagaaacga gtgttagaga 2640
agacgaagca gttcatcgac agcaaccca accagcctct tgatcatcctg gagatggaga 2700
gcggcgccctc agccaaggcc ctgaatgaag ccttgaagct cttcaagatg cactcccctc 2760
agacttctgc catgctcttc acggtggaca atgaggctgg caagatcacg tgcctgtgtc 2820
aagtcccccga gaatgcagcc aatcggggct taaaagccag cgagtgggtg cagcagggtg 2880
caggcttgat ggacggtaaa ggtgggtggca aggatgtgtc tgcacaggcc acaggcaaga 2940
acgttggctg cctgcaggag gcgctgcagc tggccacttc cttcgcccag ctgcgcctcg 3000
gggatgtaaa gaactgagtg gggaaggagg aggcctccac tggatccatc cgtccagcca 3060
agagctcttc atctgctaca agaacatttg aatcttggga cttttaaaga gcccctccta 3120
accagcagc aactggaaca cacttgggag cagtcctatg tctcagtgcc ccttaaattt 3180
ctgccttgag cctccacgt cagtgcctac ggtctagaac cactaaccgc gcattgctgt 3240
tgatcgctac gctcgcatct atagataacg gctctccaga cctgagcttt ccgctgcagc 3300
aagtaggaat cgtttttgct gcagagaata aaaggaccac gtgc 3344

```

&lt;210&gt; 171

&lt;211&gt; 1004

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 171

```

Tyr Ser Cys Ala Ser Ala Gly Ile Gly Ala Ala Gly Pro Trp Arg Gly
1           5           10          15
Thr Leu Arg Glu Glu Leu Gly Thr Ala Thr Leu Gly Glu Phe Phe Gly
20          25          30
Val Thr Phe Lys Met Asp Ser Thr Leu Thr Ala Ser Glu Ile Arg Gln
35          40          45
Arg Phe Ile Asp Phe Phe Lys Arg Asn Glu His Thr Tyr Val His Ser
50          55          60
Ser Ala Thr Ile Pro Leu Asp Asp Pro Thr Leu Leu Phe Ala Asn Ala
65          70          75          80
Gly Met Asn Gln Phe Lys Pro Ile Phe Leu Asn Thr Ile Asp Pro Ser
85          90          95
His Pro Met Ala Lys Leu Ser Arg Ala Ala Asn Thr Gln Lys Cys Ile
100         105         110
Arg Ala Gly Gly Lys Gln Asn Asp Leu Asp Asp Val Gly Lys Asp Val
115         120         125
Tyr His His Thr Phe Phe Glu Met Leu Gly Ser Trp Ser Phe Gly Asp
130         135         140
Tyr Phe Lys Glu Leu Ala Cys Lys Met Ala Leu Glu Leu Leu Thr Gln
145         150         155         160
Glu Phe Gly Ile Pro Ile Glu Arg Leu Tyr Val Thr Tyr Phe Gly Gly
165         170         175
Asp Glu Ala Ala Gly Leu Glu Ala Asp Leu Glu Cys Lys Gln Ile Trp
180         185         190
Gln Asn Leu Gly Leu Asp Asp Thr Lys Ile Leu Pro Gly Asn Met Lys
195         200         205
Asp Asn Phe Trp Glu Met Gly Asp Thr Gly Pro Cys Gly Pro Cys Ser
210         215         220
Glu Ile His Tyr Asp Arg Ile Gly Gly Arg Asp Ala Ala His Leu Val
225         230         235         240
Asn Gln Asp Asp Pro Asn Val Leu Glu Ile Trp Asn Leu Val Phe Ile
245         250         255
Gln Tyr Asn Arg Glu Ala Asp Gly Ile Leu Lys Pro Leu Pro Lys Lys
260         265         270

```

Ser Ile Asp Thr Gly Met Gly Leu Glu Arg Leu Val Ser Val Leu Gln  
 275 280 285  
 Asn Lys Met Ser Asn Tyr Asp Thr Asp Leu Phe Val Pro Tyr Phe Glu  
 290 295 300  
 Ala Ile Gln Lys Gly Thr Gly Ala Arg Pro Tyr Thr Gly Lys Val Gly  
 305 310 315 320  
 Ala Glu Asp Ala Asp Gly Ile Asp Met Ala Tyr Arg Val Leu Ala Asp  
 325 330 335  
 His Ala Arg Thr Ile Thr Val Ala Leu Ala Asp Gly Gly Arg Pro Asp  
 340 345 350  
 Asn Thr Gly Arg Gly Tyr Val Leu Arg Arg Ile Leu Arg Arg Ala Val  
 355 360 365  
 Arg Tyr Ala His Glu Lys Leu Asn Ala Ser Arg Gly Phe Phe Ala Thr  
 370 375 380  
 Leu Val Asp Val Val Val Gln Ser Leu Gly Asp Ala Phe Pro Glu Leu  
 385 390 395 400  
 Lys Lys Asp Pro Asp Met Val Lys Asp Ile Ile Asn Glu Glu Glu Val  
 405 410 415  
 Gln Phe Leu Lys Thr Leu Ser Arg Gly Arg Arg Ile Leu Asp Arg Lys  
 420 425 430  
 Ile Gln Ser Leu Gly Asp Ser Lys Thr Ile Pro Gly Asp Thr Ala Trp  
 435 440 445  
 Leu Leu Tyr Asp Thr Tyr Gly Phe Pro Val Asp Leu Thr Gly Leu Ile  
 450 455 460  
 Ala Glu Glu Lys Gly Leu Val Val Asp Met Asp Gly Phe Glu Glu Glu  
 465 470 475 480  
 Arg Lys Leu Ala Gln Leu Lys Ser Gln Gly Lys Gly Ala Gly Gly Glu  
 485 490 495  
 Asp Leu Ile Met Leu Asp Ile Tyr Ala Ile Glu Glu Leu Arg Ala Arg  
 500 505 510  
 Gly Leu Glu Val Thr Asp Asp Ser Pro Lys Tyr Asn Tyr His Leu Asp  
 515 520 525  
 Ser Ser Gly Ser Tyr Val Phe Glu Asn Thr Val Ala Thr Val Met Ala  
 530 535 540  
 Leu Arg Arg Glu Lys Met Phe Val Glu Glu Val Ser Thr Gly Gln Glu  
 545 550 555 560  
 Cys Gly Val Val Leu Asp Lys Thr Cys Phe Tyr Ala Glu Gln Gly Gly  
 565 570 575  
 Gln Ile Tyr Asp Glu Gly Tyr Leu Val Lys Val Asp Asp Ser Ser Glu  
 580 585 590  
 Asp Lys Thr Glu Phe Thr Val Lys Asn Ala Gln Val Arg Gly Gly Tyr  
 595 600 605  
 Val Leu His Ile Gly Thr Ile Tyr Gly Asp Leu Lys Val Gly Asp Gln  
 610 615 620  
 Val Trp Leu Phe Ile Asp Glu Pro Arg Arg Arg Pro Ile Met Ser Asn  
 625 630 635 640  
 His Thr Ala Thr His Ile Leu Asn Phe Ala Leu Arg Ser Val Leu Gly  
 645 650 655  
 Glu Ala Asp Gln Lys Gly Ser Leu Val Ala Pro Asp Arg Leu Arg Phe  
 660 665 670  
 Asp Phe Thr Ala Lys Gly Ala Met Ser Thr Gln Gln Ile Lys Lys Ala  
 675 680 685  
 Glu Glu Ile Ala Asn Glu Met Ile Glu Ala Ala Lys Ala Val Tyr Thr  
 690 695 700  
 Gln Asp Cys Pro Leu Ala Ala Ala Lys Ala Ile Gln Gly Leu Arg Ala

705                      710                      715                      720  
 Val Phe Asp Glu Thr Tyr Pro Asp Pro Val Arg Val Val Ser Ile Gly  
                                  725                      730                      735  
 Val Pro Val Ser Glu Leu Leu Asp Asp Pro Ser Gly Pro Ala Gly Ser  
                                  740                      745                      750  
 Leu Thr Ser Val Glu Phe Cys Gly Gly Thr His Leu Arg Asn Ser Ser  
                                  755                      760                      765  
 His Ala Gly Ala Phe Val Ile Val Thr Glu Glu Ala Ile Ala Lys Gly  
                                  770                      775                      780  
 Ile Arg Arg Ile Val Ala Val Thr Gly Ala Glu Ala Gln Lys Ala Leu  
 785                      790                      795                      800  
 Arg Lys Ala Glu Ser Leu Lys Lys Cys Leu Ser Val Met Glu Ala Lys  
                                  805                      810                      815  
 Val Lys Ala Gln Thr Ala Pro Asn Lys Asp Val Gln Arg Glu Ile Ala  
                                  820                      825                      830  
 Asp Leu Gly Glu Ala Leu Ala Thr Ala Val Ile Pro Gln Trp Gln Lys  
                                  835                      840                      845  
 Asp Glu Leu Arg Glu Thr Leu Lys Ser Leu Lys Lys Val Met Asp Asp  
                                  850                      855                      860  
 Leu Asp Arg Ala Ser Lys Ala Asp Val Gln Lys Arg Val Leu Glu Lys  
 865                      870                      875                      880  
 Thr Lys Gln Phe Ile Asp Ser Asn Pro Asn Gln Pro Leu Val Ile Leu  
                                  885                      890                      895  
 Glu Met Glu Ser Gly Ala Ser Ala Lys Ala Leu Asn Glu Ala Leu Lys  
                                  900                      905                      910  
 Leu Phe Lys Met His Ser Pro Gln Thr Ser Ala Met Leu Phe Thr Val  
                                  915                      920                      925  
 Asp Asn Glu Ala Gly Lys Ile Thr Cys Leu Cys Gln Val Pro Gln Asn  
                                  930                      935                      940  
 Ala Ala Asn Arg Gly Leu Lys Ala Ser Glu Trp Val Gln Gln Val Ser  
 945                      950                      955                      960  
 Gly Leu Met Asp Gly Lys Gly Gly Gly Lys Asp Val Ser Ala Gln Ala  
                                  965                      970                      975  
 Thr Gly Lys Asn Val Gly Cys Leu Gln Glu Ala Leu Gln Leu Ala Thr  
                                  980                      985                      990  
 Ser Phe Ala Gln Leu Arg Leu Gly Asp Val Lys Asn  
                                  995                      1000

&lt;210&gt; 172

&lt;211&gt; 659

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 172

gcctgagcaa	cgtctccgag	caggcgctgg	gctagaggcg	ggtctcaacc	agctactcat	60
tggaggcggg	cttgagagcg	gcggccaggg	aggtgcggag	cagcctcggc	ggcggcggcc	120
gaaccaaccg	agtcggatcc	tgaccctaaa	acctagtatt	ttccacttgt	tcatcaatat	180
ggaaaaactca	gattccaatg	acaaaggaag	tggtgatcag	tctgcagcac	agcgcagaag	240
tcagatggac	cgattggatc	gagaagaagc	tttctatcaa	tttgtaaata	acctgagtga	300
agaagattat	aggcttatga	gagataacaa	tttgctaggc	accccagggtg	aaagtactga	360
ggaagagttg	ctgagacgac	tacagcaaat	taaagaaggc	ccaccaccgc	aaaactcaga	420
tgaaaataga	ggaggagact	cttcagatga	tgtgtctaata	ggtgactcta	taatagactg	480
gcttaactct	gtcagacaaa	ctggaaatac	aacaagaagt	gggcaaagag	gaaaccaatc	540
ttggagagca	gtgagtcgga	ctaataccaa	cagtggtgga	tttcagattc	agtttagaga	600
taaatgttaa	cccgtataaa	tgggagccaa	aattcagaga	atgaaaatga	gccatctgc	659

<210> 173  
 <211> 192  
 <212> PRT  
 <213> Homo Sapiens

<400> 173  
 Pro Glu Gln Arg Leu Arg Ala Gly Ala Gly Leu Glu Ala Gly Leu Asn  
 1 5 10 15  
 Gln Leu Leu Ile Gly Gly Gly Leu Glu Ser Gly Gly Gln Gly Gly Ala  
 20 25 30  
 Glu Gln Pro Arg Arg Arg Arg Pro Asn Gln Pro Ser Arg Ile Leu Thr  
 35 40 45  
 Leu Lys Pro Ser Ile Phe His Leu Phe Ile Asn Met Glu Asn Ser Asp  
 50 55 60  
 Ser Asn Asp Lys Gly Ser Gly Asp Gln Ser Ala Ala Gln Arg Arg Ser  
 65 70 75 80  
 Gln Met Asp Arg Leu Asp Arg Glu Glu Ala Phe Tyr Gln Phe Val Asn  
 85 90 95  
 Asn Leu Ser Glu Glu Asp Tyr Arg Leu Met Arg Asp Asn Asn Leu Leu  
 100 105 110  
 Gly Thr Pro Gly Glu Ser Thr Glu Glu Glu Leu Leu Arg Arg Leu Gln  
 115 120 125  
 Gln Ile Lys Glu Gly Pro Pro Pro Gln Asn Ser Asp Glu Asn Arg Gly  
 130 135 140  
 Gly Asp Ser Ser Asp Asp Val Ser Asn Gly Asp Ser Ile Ile Asp Trp  
 145 150 155 160  
 Leu Asn Ser Val Arg Gln Thr Gly Asn Thr Thr Arg Ser Gly Gln Arg  
 165 170 175  
 Gly Asn Gln Ser Trp Arg Ala Val Ser Arg Thr Asn Pro Asn Ser Gly  
 180 185 190

<210> 174  
 <211> 610  
 <212> DNA  
 <213> Homo Sapiens

<400> 174  
 gtactggcat cagtcaatgt tctggagtga tttgggcccc gatgttggct atgaagctat 60  
 tggctcttgtg gacagtagtt tgcccacagt tgggtgtttt gcaaaagcaa ctgcacaaga 120  
 caaccccaaaa tctgccacag agcagtcagg aactggtatc cgatcagaga gtgagacaga 180  
 gtccgaggcc tcagaaatta ctattctctc cagcaccocg gcagttccac aggctccgt 240  
 ccaggggggag gactacggca aagggtgtcat cttctacctc agggacaaag tggctcgtggg 300  
 gattgtgcta tggaacatct ttaaccgaat gccaatagca aggaagatca ttaaggacgg 360  
 tgagcagcat gaagatctca atgaagtagc caaactattc aacattcatg aagactgaag 420  
 cccacagtg gaattggcaa acccactgca gccctgaga ggaggtcgaa tgggtaaagg 480  
 agcatttttt tattcagcag actttctctg tgtatgagtg tgaatgatca agtcctttgt 540  
 gaatattttc aactatgtag gtaaattctt aatgttcnca tagtgaaata aattctgatt 600  
 cttctaataaa 610

<210> 175  
 <211> 138  
 <212> PRT  
 <213> Homo Sapiens

<400> 175

Tyr Trp His Gln Ser Met Phe Trp Ser Asp Leu Gly Pro Asp Val Gly  
 1 5 10 15  
 Tyr Glu Ala Ile Gly Leu Val Asp Ser Ser Leu Pro Thr Val Gly Val  
 20 25 30  
 Phe Ala Lys Ala Thr Ala Gln Asp Asn Pro Lys Ser Ala Thr Glu Gln  
 35 40 45  
 Ser Gly Thr Gly Ile Arg Ser Glu Ser Glu Thr Glu Ser Glu Ala Ser  
 50 55 60  
 Glu Ile Thr Ile Pro Pro Ser Thr Pro Ala Val Pro Gln Ala Pro Val  
 65 70 75 80  
 Gln Gly Glu Asp Tyr Gly Lys Gly Val Ile Phe Tyr Leu Arg Asp Lys  
 85 90 95  
 Val Val Val Gly Ile Val Leu Trp Asn Ile Phe Asn Arg Met Pro Ile  
 100 105 110  
 Ala Arg Lys Ile Ile Lys Asp Gly Glu Gln His Glu Asp Leu Asn Glu  
 115 120 125  
 Val Ala Lys Leu Phe Asn Ile His Glu Asp  
 130 135

<210> 176  
 <211> 805  
 <212> DNA  
 <213> Homo Sapiens

<400> 176  
 gggacagcca agtctgtgac ttgcacgtac tcccctgccc tcaacaagat gttttgccaa 60  
 ctggccaaga cctgccctgt gcagctgtgg gttgattcca ccccccgcc cggcaccgc 120  
 gtccgcgcca tggccatcta caagcagtca cagcacatga cggaggtgtg gaggcgtgc 180  
 cccaccatg agcgtgtctc agatagcgat ggtctgcccc ctctcagca tcttatccga 240  
 gtggaaggaa atttgcgtgt ggagtatttg gatgacagaa acacttttcg acatagtgtg 300  
 gtggtgccct atgagccgcc tgaggttggc tctgactgta ccaccatcca ctacaactac 360  
 atgtgtaaca gttcctgcat gggcggcatg aaccggaggc ccatcctcac catcatcaca 420  
 ctggaagact ccagtggtaa tctactggga cggaacagct ttgaggtgcg tgtttgtgcc 480  
 tgtcctggga gagaccggcg cacagaggaa gagaatctcc gcaagaaagg ggagcctcac 540  
 cacgaagctg cccccaggga gcaactaagcg agcactgccc aacaacacca agctcctctc 600  
 cccagccaaa gaagaaancca ctggatngag aatatttcac cccttcanat tcgttggcg 660  
 tgagcgcttc cganaatggt ccgaagagct gnaagaaggc cttgggaact caaaggatgc 720  
 ccaaggcttg ggaaaggagc caangggggg gaancaangg gctcaactnc aagccaacct 780  
 gaaagtcca aaaaangggg ccagt 805

<210> 177  
 <211> 626  
 <212> DNA  
 <213> Homo Sapiens

<400> 177  
 ctaatttgtc tgtttattcc cacaaggtag ccagggggtg gggcgccgag ccaagcccag 60  
 caggccatgg gaccttcctc cggcgggggtg cacgctggat ttccgggtct gccccaccag 120  
 caggtttgca ggcaggccgt catgagtgcg ggtggaaggc tccgagggcg tgggcagggg 180  
 ctccggcggg gccacacact tgtggagcta gaaatantgg ggcaggtcct tctctatcac 240  
 caggggctcc tccatgggtc cgtagcgctt caccacgcag ccgttcttgt cgatgaggaa 300  
 ctgtgganan acggtgtcca aactgtgggg caccctctgc aaggggctga ggctgccctt 360  
 cctgtccgct gcccatctgg gccacggctg tggccagggg aaactgggtcc cctaccccc 420  
 acagccccct taccttttgt gaagtccac ttgatggcac tggaaaanaa gcacatggac 480  
 gtgagcgctc ccaggcagcc ccccacagtc cccaaagctt gtctgtgtc caaggaggcc 540

anaaagggttg tnagcttccc cgggtncctc cacangccac agtgccccca aanccccccc 600  
 aanagccatc tttaccccaa ggaggg 626

<210> 178  
 <211> 793  
 <212> DNA  
 <213> Homo Sapiens

<400> 178  
 ggcgcaggct gctgctgctg cccccggccc gcgcggctgg aaacggagag gccgagccaa 60  
 gggcgggccc ctcttatgct gggaggatgc tggagagtag cggctgcaaa gcgctgaagg 120  
 agggcggtgct ggagaagcgc agcgacgggt tgttgacgct ctggaagaaa aagtgttgca 180  
 tcctcaccga ggaagggctg ctgcttatcc cgcccaagca gctgcaacac cagcagcagc 240  
 agcaacagca gcagcagcag cagcaacaac agcccgggca ggggccggcc gagccgtccc 300  
 aacccagtgg ccccgctgtc gccagcctcg agccgcgggt caagctcaag gaactgcaact 360  
 tctccaacat gaagaccgtg gactgtgtgg agcgcaagg caagtacatg tactttcactg 420  
 tgggtgatggc agaggggcaag gagatcgact ttcgggtgccc gcaagaccag ggctggaacg 480  
 ccgagatcac gctgcagatg gtgcagtaca agaatcgtca ggccatcctg gcggtcaaat 540  
 ccacgcggca gaagcagcag cacctggtcc agcancagcc cccctcgag ccgcagccgc 600  
 agccgcagct ccaagcccca accccagcct tcagcctcaa gccngcaacc ccaagcccca 660  
 attcacaac cccaagccct caagcccaaa cccaaagccc tcangcccca ngcaagntcc 720  
 aacccgttat ncggccatcc aacattcaan atccaanact ctcaangcct taactncgcn 780  
 acccaanaac nct 793

<210> 179  
 <211> 786  
 <212> DNA  
 <213> Homo Sapiens

<400> 179  
 aatatcagag ttttaatttc aaccagctgg cacaacaatg aaagtgtcag actttctgaa 60  
 agtactcgag aaataatgaa taaattctta atgttttccc ctccaccgcc cttttttatt 120  
 ctccaagatt aggaattact acggattagg tttttgaaaa taaagtttcc tttttggaaa 180  
 atggtctaca ttcagaaatg tcttagaaca agcattttaa aaaaactaat aaataatcat 240  
 aatcaaaaat acattaaaat aaaattacag tacatcatcg ctccatagaaa attcaccata 300  
 caagacgac ctttcaaagg ttcataaata aaagtcttct tgactcgaaa tcgtttcctg 360  
 catcgtgatg aaaagtatgc agaaaactaa gaagaatcgc aagttttcag tagggatgag 420  
 tccaaactac ttgatctggt gcggggcgga gagactgttt tgcttttgat ccaagtgaag 480  
 acaatagaaa tgtgctcgct ccacttcctc aagtcctcaa aaccttgtct tgcccgggag 540  
 ctgccccttt cangcagagt tgggaggtgc tgcgganaaa ccggtgcccg tgcggctgcc 600  
 aatgcggctg tgggtgtggg tgcngtattt ggtgccggat gcnggtgccg ggtnaagggtg 660  
 tggggtgcca antnaaggat gaaaatgtgg atnttngnat nttgattccg gatacgggggt 720  
 gggaacctng cngggggccn naaggcttgg ggttggggct naanggtcg ggttttttaa 780  
 ttgggg 786

<210> 180  
 <211> 791  
 <212> DNA  
 <213> Homo Sapiens

<400> 180  
 aggacctcag agaccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga 60  
 aggagggtat cctgcagctg cgctgcacca actcagccaa gccagtcga ctggcaccat 120  
 cctcatggc ctcttctccg acttctatct gtgtgtgtgg gcaggtgcca gctgggggtg 180  
 gatttctgca gtgtgacctg tgctcaggact ggttccatgg gcagtggtg tcagtgcccc 240



atctcctcac	ctctccaaag	cccagttctca	cttcatctcc	actgctagcc	tggtgggaat	300
gggacacaaa	attcctgtgt	ccactgtgta	tgcgctcacg	acggccacgc	ctagagacaa	360
tcctagcctt	gctggttgcc	ctgcagaggc	tgcccgtgcg	gctgcctgag	ggtgaggccc	420
ttcagtgtct	cacagagagg	gccattggct	ggcaagaccg	tgccagaaag	gctctggcct	480
ctgaagatgt	gactgctctg	ttgcgacagc	tggtgagct	tcgccaacag	ctacaggcca	540
aacccanacc	agaggaggcc	tcagtctaca	cttcagccac	tgctgtgac	cctatcagag	600
aaggcagtgg	caacaatatt	tcnaangtcc	aagggtctgct	ggagaatgga	gacantgttg	660
accagtccctg	agaacatggc	tccaggaaag	ggctctgacc	tggagctacn	gtcctcactg	720
ttgccgcaat	ttgactggnc	ctgttttttg	ganctgcctg	aaggcaatcc	cggggctccc	780
cctggaggga	g					791

&lt;210&gt; 181

&lt;211&gt; 747

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 181

agtatccaaa	catactcatt	gtttttat	ttt taacaaaaga	aatgaaatta	aagatagacc	60
acaggtagag	tcattgaaatt	cttgtttttc	cctattcttt	ttggttaatta	caacgtacat	120
tgtcttcttt	tataataaga	cccaagggga	gaaaagaaaa	ggatgtacaa	tgaaggtaga	180
agttttgaag	cacccaaaata	ttttatgaca	gggacaaaaa	aacaaaaaac	aaacaaaaat	240
tgaagtacag	aaagagggtg	gtgggggcaa	aaataaaggt	acgcacttgg	gcttcctcaa	300
gatttgtttg	tccctattca	gactagaatg	aaactggttt	aggaaatcac	tcctgtatgc	360
tagcagggaat	gttgctggca	agacacttct	gagcatcggt	gtgtggactt	tacgaaccaa	420
ccttttaaca	gtaactctag	gagagaggat	atcaaaaatt	ggcagtgaag	aattatagat	480
aggcaaaaag	ctccttctga	ggtccaggcc	aggagatagt	angatttaag	aaacaaacaa	540
acaataacaa	ccacaaatgg	acctttgggt	ccactgtcac	aactgttgct	catcagagta	600
ggagaattgt	ancaaaggca	ttaaagaagg	gcaagcaag	ctgaagagcc	tgaatccttg	660
gggttgtaag	ccnatttttg	gnttcctttc	azgaaaagg	ctgttggncg	gtggaanggg	720
tcanggaaca	ntatttcacg	ggtcngc				747

&lt;210&gt; 182

&lt;211&gt; 909

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 182

aaacagagag	ccaaatcatg	agtgaactcc	cattcacaat	tgcttccaag	ataataaaat	60
acctaggaat	ccaacttaca	aaggatgtga	aggacctctt	caaggagaac	tacaaaccac	120
tgctcaatga	aataaaagag	gatacaaaaca	aatggaagaa	cattccatgc	tcattgggtag	180
gaagaatcaa	tatcgtgaaa	atggccatac	tgcccaaggt	aatgtataga	ttcaatgcca	240
tccccatcaa	gctaccaatg	actttcttca	cagaattgga	aaaaactact	caaaagtcca	300
tatggaacca	aaaaagagcc	cacattgcca	agtcaatcct	aagccaaaag	aacaaagctg	360
gaggcatcac	gctacctgac	ttcaaaactat	actacaaggc	tacagtaacc	aaaacagcgt	420
ggtactggta	ccaaaacaga	gatataaatc	aatgcaacag	aacagagccc	tcagaaataa	480
tgccacatat	ctacaactat	ctgatctttg	acaaacctga	gaaaaacaag	caatggggaa	540
aggattccct	atttaataaa	tggtgctggg	aaaactggct	agccatatgt	agaaagctga	600
aactggatct	cttctttata	ccttatataa	aaattaattg	aagatggntt	aaaggactta	660
aaactgtagac	ctaaaaccat	aaaaacccta	gaagaaaaac	ctaggcatta	ccattcangg	720
acataggcct	gggcaaggac	ttcctgtcta	aaacaccaan	agcaatggga	ncaaaagcca	780
aaattgcaaa	tggggattct	aattaactaa	agggtctttg	cacagcnaag	aagctccatc	840
agagngaaca	ggaacntcaa	antgggagaa	attttgaacc	taccatcnga	naaggcta	900
nccagaatc						909

&lt;210&gt; 183

&lt;211&gt; 708

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 183

attatcatta	tactttaagt	tttaggttac	atgtgcacaa	tgtgcagggt	agttacatat	60
gtatacatgt	gccatgctgg	tgtgctgcac	ccattaactc	gttatcttagc	attaggtata	120
tctcctaagt	ctatccctcc	cgctccccc	cacccacaa	cagtcccag	agtgtgatgt	180
tccccttcc	gtgtccatgt	gttctcactg	ttcaattccc	acctatgagt	gagaatatgc	240
gggttttgg	ttttttgtcc	ttgccatagt	ttactgagaa	tgatgatttc	caatttcac	300
cctgtcccta	caaaggacat	gaactcatca	ttttttatgg	ctgcatagta	ttccatgggtg	360
tatatgtgcc	acattttctt	aatccagtct	atcattgttg	gccatttggg	ttggttccaa	420
gtcctttgcta	ttgtgaatac	tgccgcaata	aacatacgtg	tgcatgtgtc	tttatagcag	480
catgatttat	antcctttgg	gtatatactc	agtaatggga	tggctgggtc	aaatgggnatt	540
ccaantccan	atcccttang	aattgccaca	cggactccac	aanggttgaa	ctantttaca	600
gtcccancaa	cagngtnaaa	gggtccnaan	tcnccaaaat	cctctccaag	caccngttgt	660
tcccggactt	tttaanggat	tncaattcc	aaccggngt	caaaaggg		708

&lt;210&gt; 184

&lt;211&gt; 855

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 184

agactcacag	tctgctgggt	ggcagagaag	acagaaacga	catgagcaca	gcaggaaaag	60
taatcaaag	caaagcagct	gtgctatggg	aggtaaagaa	acccttttcc	attgaggatg	120
tggaggttg	acctcctaag	gcttatgaag	ttcgcattaa	gatgggtggc	gtaggaaatct	180
gtcgcacaga	tgaccacgtg	gttagtggca	acctgggtgac	cccccttcc	gtgattttag	240
gccatgaggc	agccggcatc	gtggagagtg	ttggagaagg	ggtgactaca	gtcaaaccag	300
gtgataaagt	catcccgctc	tttactcctc	agtgtggaaa	atgcagagtt	tgtaaaaacc	360
cggagagcaa	ctactgcttg	aaaaatgac	taggcaatcc	tcgggggacc	ctgcaggatg	420
gcaccaggag	gttcacctgc	agggggaagc	ccattcacca	cttccttggc	accagcacct	480
tctcccagta	cacggtgggt	gatgagaatg	cagtggccaa	aattgatgca	gcctcgcccc	540
tggagaaaagt	ctgcctcatt	ggctgtggat	tctcgactgg	gttatgggtc	tgcatgtaac	600
gttgccaagg	tcaccccagg	ctctacctgt	gctgtgtgtg	gcctgggaag	ggcggccta	660
tctgctgtta	tgggtgtgta	aagcaactgg	aggcanccag	aatcaattgc	gggtggacac	720
aacaaggaca	aattttgcaa	agggcaaaaag	agttgggtgc	cactgaatgc	catcaaccct	780
caagnctnca	ngnaaaccca	tccaggnaag	tgctaaaang	gaatttaccg	attggagggt	840
ttggattttt	ccgtt					855

&lt;210&gt; 185

&lt;211&gt; 865

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 185

cacagatgtt	caatcaactg	atgaagcaag	tgtcaggact	tactgttgac	acagaggagc	60
ggctgaaagg	agttattgac	ctgggtcttg	agaaggctat	tgatgaacc	agtttctctg	120
tggtcttacg	aaacatgtgt	cgatgtctag	taacgctgaa	agtacccatg	gcagacaagc	180
ctggttaacac	agtgaatttc	cggaaagctgc	tactgaaccg	ttgccagaag	gagtttgaaa	240
aagataaagc	agatgatgat	gtctttgaga	agaagcagaa	agaacttgag	gctgccagtg	300
ctccagagga	gaggacaagg	cttcacatg	aactggaaga	agccaaggac	aaagccggc	360
ggagatccat	tggcaacac	aagtttattg	gagaactctt	taaactcaaa	atgctgactg	420
aagccatcat	gcatgactgt	gtggtgaagc	tgctaaagaa	ccatgatgaa	gaatccctgg	480
agtgcctgtg	tcgcctgctc	accaccattg	gcaaagactt	ggactttgaa	aaagcaaagc	540

```

cacgtatgga ccagtacttt aatcaagatg gagaaaattg tnaaagaaag aaaaacctca 600
tctagggatt cggttcatgc ttcaaagatg ttatanacct aaggctgttg caattgggggt 660
atctcgaaag agcagatnaa gggcctnaan ctatcgaaca gattcacaaa ganggctaaa 720
attgaaanaa caagaatagc caaagggaag gnccaacaac tcatggacca anggagaaat 780
agaataccaa ggtgttccaa aaanttggcc aaangnnggt tggaaanacn gttcaaaggg 840
ggccangaaa aantccgggt actgg 865

```

```

<210> 186
<211> 736
<212> DNA
<213> Homo Sapiens

```

```

<400> 186
aaatatttgt tctatgtatt tacaagcctt aaagttgtct taaagatttc aagagtatta 60
agagtacttt tctcagggtg gcactttngt ttttttaaac aattcttgga gttctgtggt 120
ccacagcatt tccttctgtt tcaatgttat gtatgttttg attactattg tgatttttta 180
aattttctga agcaagctga gaggcaggca gaaagatttg atgccaaaaa aaaaaaaatc 240
tttcttacct tgttcacccc aaactttctc aaatctggac taaatgctat accttaaaac 300
aaacatgagg tgcattctga aggggaggga aatttatctc tctgcttttc tattatacaa 360
gttgtttaca gaaactgcaa attaaaaaat tacactggca tttgcagtcc ttaaaataaa 420
ttaaaagttc tcaacttttt tttttttttg ctaaactttt ttttaagtat gagtccttgt 480
ttaaaaagaa aagattaaaa cagaaaatat tttctataaa taatacatgt attttggttt 540
tagtgctccc gccctaaggt ttgaagttaa cttttancca ngtacctttt tcctccatga 600
tcaccttttt ttctctttcc cctctcccaa ntccgtgcac acgtgggggt ttccggcaan 660
aattggcctt gctgnactgt gattgggcga anaacgttga aaaaaccttt taaaaaaaaa 720
tacttaaaat tgggtt 736

```

```

<210> 187
<211> 946
<212> DNA
<213> Homo Sapiens

```

```

<400> 187
tgaaggagct acaggccgag caggaggacc gggctttaag gagttttaag ctgagtgta 60
ctgtagaccc caaataccat cccaagatta tcgggagaaa gggggcagta attacccaaa 120
tccggttga gcatgacgtg aacatccagt ttctgataa ggacgatggg aaccagcccc 180
aggaccaa ataccatcaca gggtagcaaa agaacacaga agctgccagg gatgctatac 240
tgagaattgt ggggtgaactt gagcagatgg tttctgagga cgtcccgtg gaccaccg 300
ttcacgccc catcattggt gccgcggca aagccattcg caaaatcatg gacgaattca 360
aggtggacat tcgcttccca cagagcggag ccccgaccc caactgcgtc actgtgacgg 420
ggctcccaga gaatgtggag gaagccatcg accacatcct caatctggag gaggaatacg 480
tgagtctctg tgggccttgg agccctgagg cgccctggca cgtccaccgg cctgaggccc 540
agccaggagc ttcaggggac aaggtggcac ttgtgtttcc agaggcaagc naagtgcagg 600
ggtgagcaag cnggcgggat gctgggggtg ctggggcaaa ctgaccctgt ctctctgtct 660
tccgcctgca gctagcctga cgttgtggac agtnaangcg cctgcangtt atacatgaaa 720
ccccagcac acgaanaagc caanggnacc tttcaaaaagg ctttnttggt gccgggacca 780
acctgggacc gccagcaacc aatnaaaaaa ggcncgtgacn ttaaccaagc tcngagggaa 840
tttcccance tttgggggct caaggtggct cccaaagaac cctcccentt ngggggcccc 900
aaacnaatna ttgttcaaaa anggaacaaa aacccctctc aagccc 946

```

```

<210> 188
<211> 802
<212> DNA
<213> Homo Sapiens

```

&lt;400&gt; 188

aaagtcaagg	ncgtttat	ccngaggnc	tgacacanga	agtggaa	naaccacggn	60
tgcggnnaa	aagtgatg	ggccaaagt	ctgactgaca	tgccgggtg	accaaganct	120
ggagtcngtt	atcntaac	gaatgccc	gaccttggt	taatgttaa	cantggagca	180
ngtcctganc	gggcacggc	angcctgg	gancggccg	acacacanc	angcgcna	240
ctccctg	gacctcng	aggggga	gcgtcaaca	tttacggng	gtccaaccg	300
tgggtcaaat	tgagacaaa	cantgtgtg	ttgggttcg	gtcancang	tggananggt	360
tcngttcnt	ttgatcant	ncntttggg	ccccaggga	nggtcntgg	anccacctga	420
nccccaaagc	tgggaaatt	ctcaaagct	cncatgtca	gagccttcn	antgctgctg	480
gcggtccaag	gtgcgtccc	caccacaa	cctctgga	gngccntgg	ctcttctctg	540
gccgggggtt	tcattgtnt	ctgcancgc	tactgtcca	ccaangtcag	ctaactgcag	600
gcnnaaagaca	ggaatnacag	ggtcagtctg	ccaacaacc	ccancatccc	ggccccccct	660
ggctcaaaac	ctgcaacctt	gcctgccttc	cggaanac	aatttccac	ccttgtnc	720
ctgaaanccn	cctggnctg	ggccntcaa	ggcgttgga	ncttccanag	gncnccccca	780
gggntcccc	angggccac	aa				802

&lt;210&gt; 189

&lt;211&gt; 807

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 189

aaaatggcgg	cggcagcgg	gtcgtttgt	ttccgcggt	cctgcggcg	tggcagtggt	60
agcggccttt	gagctgtgg	gaggttccag	cagcagctac	agtgcagact	aagactccag	120
tgcatttcta	tcgtaaccg	gcgcggggga	gcgcagatcg	gcgccagca	atcacagaag	180
ccgacaaggc	gttcaagcga	aaacatgacc	gctgagccca	tgagtgaag	caagttgaat	240
acattggtgc	agaagcttca	tgacttcctt	gcacactcat	cagaagaatc	tgaagaaaca	300
agttctcctc	cacgacttgc	aatgaatcaa	aacacagata	aaatcagtg	ttctggaagt	360
aactctgata	tgatggaaaa	cagcaaggaa	gagggaacta	gctcttcaga	aaaatccaag	420
tcttcaggat	cgtcacgac	aaagaggaaa	ccttcaattg	taacaaagta	tgtagaatca	480
gatgatgaaa	aacctttgga	tgatgaaact	gtaaatgaag	atgcgtctaa	tgaaaattca	540
gaaaatgata	ttactatgca	nagcttgcca	aaaggtacag	tgattgttca	gccagagcca	600
gtgctgaatg	aagacaaaga	tgattttaaa	ggggcctgaa	tttagaagca	gaagttaaaa	660
tgaaaactga	naatctcaaa	aaacgcggga	gaanatgggc	ttcatgggga	ttgtgangcc	720
tgcactggcn	tggtggacaa	caaggtcaat	caatttcaaa	aaggttccat	ttatagacaa	780
cccttcaatg	caaggtcnta	tttgta				807

&lt;210&gt; 190

&lt;211&gt; 608

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 190

ccagttcttt	ttttcccttc	ttctggctca	tcattctgaag	atccatcctc	atcagaggaa	60
agattggctt	taatttcttc	taaaagcatc	ttcttgga	ttctattctc	aggatcattg	120
tcgtcatcat	catcatccac	tgtgacaggc	actgatttag	ataaggcttc	atctcctgaa	180
gattggcaaa	atccagtatg	tgaagacagc	actaaat	cagtcacagg	cttaattttc	240
tgttcatcgc	tgcttccctc	acctatagaa	ttctgatcat	catcttctat	atcagaagaa	300
gatgaggatg	taatgtcagc	ttgcttccct	ttagtgtctg	ttcttaggga	gtttctcttt	360
ttctccttga	caatgactgc	cttcttttta	gatgaagttc	tttgcttctt	ctttttacta	420
tcttcangaa	ctttcctcag	catcagatga	tgatgangcc	actttgtatt	tccttagtat	480
ttctctttga	acttaaat	cttctttccc	tcaattcgag	tcttttcagt	caccttatca	540
gaagagtac	aancatcttc	tttcatggga	agtatcaaga	tgatgaacaa	tcttgtcnct	600
tccttgaa						608

<210> 191  
 <211> 786  
 <212> DNA  
 <213> Homo Sapiens

<400> 191  
 gcactttgct gatggtggac agtgaggagg agtacttccc tgaagagatc gccaaagctcc 60  
 ggagggacgt ggacaacggc ctctcgctcg tcatcttcag tgactggtag aacacttctg 120  
 ttatgagaaa agtgaagttt tatgatgaaa acacaaggca gtggtggatg ccggataccg 180  
 gaggagctaa catccagct ctgaatgagc tgctgtctgt gtggaacatg gggttcagcg 240  
 atggcctgta tgaaggggag ttcaccctgg ccaaccatga catgtattat gcgtcagggg 300  
 gcagcatcgc gaagtttcca gaagatggcg tcgtgataac acagactttc aaggaccaag 360  
 gattggagggt tttaaagcag gaaacagcag ttgttgaaaa cgtccccatt ttgggacttt 420  
 atcagattcc agctgagggt ggaggccgga ttgtactgta tggggactcc aattgcttgg 480  
 atgacagtca ccgacagaag gactgctttt ggcttctgga tgccctcctc cagtacacat 540  
 cgtatggggg gacaccgcct agcctcagtc actctgggaa ccgccagcgc cctcccantt 600  
 ggagcaagct cagtcactcc agagaggatg gaaggaaacc atctcatcgg tactccaagg 660  
 ttctggangg ccattttgga aaaccaaacc ctcgggctcn acaaccctgt ccangcctgt 720  
 nctgggcca gccaanagcc tttaaaccan aacggngccc aattaaccct ttggaaaaca 780  
 tcagaa 786

<210> 192  
 <211> 819  
 <212> DNA  
 <213> Homo Sapiens

<400> 192  
 gacgggtaat acatatttat tgaaaatttt cttcacccgac aatggtgaaa tcaagacctc 60  
 aaattacaaa acatgggtggc aggtgatact tacaaaaata aagcgaagggt ctatgtttta 120  
 cagattttgtg catgtttcct tcaaattctca gtctgtactg tcattaaaaa gatcatggaa 180  
 tctatgttgt tctcatgat ggaatagtaa aaaaactgca ttccactgac aaaaaaata 240  
 gctttgcttc caaatagcac aagtctttaa agtgactttt cccaacaata aatatagaaa 300  
 atagccttta acaagcgtct tttagcttgg tcagggttgt atcatttgtt tggaaagtac 360  
 atccttcccc tgcaagtcaga agaccccaga cagcctttcc agttctcccc agtctttggt 420  
 ggcacagct gccggcgga agtctcactg gcggcagagc cactaagtec ctctgacgg 480  
 gatccacagg aatcttctcg atgtaccagg agcctctgcc catcacagga gggcaggccc 540  
 atgtagaaca agactctaac aaacctgcag ctggaactg gattcctttt aaaccaacc 600  
 gccaacacag ctcggnctac ccaccancgc cgtccgtnaa aggggctctc tgggcctcac 660  
 gggtcagcca ggttgccggt cacaccgaaa ggggtccttg ggcgggtgaa cctgctgcat 720  
 gaanctggcg gggngcttca accctgggct tctccggct ttcggcctgg ncctgggcct 780  
 tgttgaantt gntccacaaa agaaaggcca ggagcaaca 819

<210> 193  
 <211> 744  
 <212> DNA  
 <213> Homo Sapiens

<400> 193  
 cagtcccagc acaacctgca ggggcatctg tccagcctgt tggccaggct ccggcagcag 60  
 tgtctgctgt acctactggc agtcagattg caaatattgg tcagcaagca aacataccta 120  
 ctgcagtgca gcagccctct acccaggttc caccttcagt tattcagcag ggtgctctc 180  
 catcttcgca agtggttcca cctgctcaaa ctgggattat tcatcaggga gttcaacta 240  
 gtgctccaag ccttctccta caattgggta ttgcatccca aagttccttg ttaactgtgc 300  
 ctccccagcc acaaggagta gaatcagtag ctcaagggaat tgtttcacag cagttgcctg 360  
 cagttagttc ttgcccctct gctagtagta tttctgttac aagtcagggt agttcaactg 420

gtccttcttg	aatgccttct	gccccaaaca	acttggttcc	accacaaaat	atagcacaaa	480
cccctgctac	ccaaaatggt	aatttgggtc	aaagtgttaa	gtcaacctcc	cttgatagca	540
actaatacaa	atttgccttt	ggcacaacag	ataccactaa	gttctaccca	agttctccgc	600
acaatcatta	gttcaggcaa	ttggaagcca	aattgaagat	gccaggcggt	gcagcggagc	660
cctccttaag	ttggcttacc	tcaagactaa	tcagttggtg	acaattgggg	ggaatgttca	720
gcaagtttca	agattgggaa	gtta				744

<210> 194  
 <211> 567  
 <212> DNA  
 <213> Homo Sapiens

<400> 194						
atcaacattt	atatgcttta	ttgaaagttg	acaagtgcga	cagttaaata	cagtgcaccc	60
ttacaattgt	gtagagaaca	tgcacagaaa	catatgcata	taactactat	acaggtgata	120
tgcagaaacc	cctactggga	aatccatttc	attagttaga	actgagcatt	tttcaaagta	180
ttcaaccagc	tcaattgaaa	gacttcagtg	aacaaggatt	tacttcagcg	tattcagcag	240
ctagatttca	ggattacaca	aagtgcagta	ctgtgccaaa	ttcttaaaat	ttctttaggt	300
gtggtttttg	tcattgtagca	gtttttatgt	agatcnatat	ntaaaagtcc	acacctcttc	360
agacangcca	atgaaacnac	taaatttcaa	tctgtacaan	ctaaatagta	attacagtcc	420
tctangtggn	caangatact	tacaccacat	anacaaatnt	acnntacgca	naacaacctt	480
catggggaag	gatagcccta	ggteccccagc	tancctgtca	ccatttttgt	cactctcata	540
gttttggtgt	ccaatccatt	ggttttg				567

<210> 195  
 <211> 771  
 <212> DNA  
 <213> Homo Sapiens

<400> 195						
gagagaacag	agcaacaaga	gcacaaagaa	aaaaagaaga	aatgaacaga	ataagaacat	60
tagttgacaa	tgcatacagc	tgtgatccaa	ggataaaaaa	gttcaaggaa	gaagaaaaag	120
ccaagaaaga	ancanaaaag	aaagcaaaaag	cagaagctaa	acggaaggag	caagaagcta	180
aagaaaaaca	aagacaagct	gaattagaag	ctgctcggtt	agctaaggag	aaagaagagg	240
aggaagtcag	acagcaagca	ttgctggcaa	agaaggaaaa	agatatccag	aaaaaagcca	300
ttaagaagga	aaggcaaaaa	tttcgaaact	catgcaagac	ctggaatcat	ttttctgata	360
atgaggcaga	gcgggttaaa	atgatggaag	aagtggaaaa	actttgtgat	cggcttgaac	420
tggcaagctt	acagtgcctg	aatgaaacac	tcacatcatg	cacaaaagaa	gtnggaaagg	480
ctgcttttga	aaaacagata	gaagaaataa	atgagcaaat	cagaaaagag	aaagaggaag	540
ctgaggctcg	tatgcgacaa	gcattctaaga	acacagagaa	atcaactggt	ggaagggtgga	600
aaatggaagt	aaaaattggg	cacaaagatg	ntctacaatt	actaatttna	aagctgtgaa	660
tcctgttncc	tgctggaaca	aantcaagat	gggaagttat	tgccaantac	atgaacatac	720
attcctcccn	cngggngtcc	aaaaagaaac	tgccaaaagn	atgtttattg	g	771

<210> 196  
 <211> 561  
 <212> DNA  
 <213> Homo Sapiens

<400> 196						
acagtatttt	cagttttatt	ataaaaatgc	acacacaaca	aagattgtca	tttcttggct	60
ctacttgcat	tcagcacttg	ttcttgagca	gctttctttg	cttttaccat	ctcgacaagt	120
tccttgtatc	gtttcatgca	gtccttcttt	gtcctgccag	gcaccgcttc	tgctattttt	180
tcccatcttt	caggtgtatt	tactgggtat	gttttcaaag	cttggttccaa	aagcttctgt	240
tcttctgttg	tccaaggggt	gaagtctgta	tatggacctt	caaactgttc	tgaaggcggt	300

```

gcgttgctctg cttgaggtac cactccatgt tcttttttga acttatcaaa tgccttttta 360
tttangtcag ctttttgatg agggtaaggt ttttgagagac tctttgcttt gccaaataaca 420
tctttggnan gttcttttga ctccaagagg aagaangtnt ngttcatgtn antangcaan 480
aacgtcccat ctggaanttt tggtcnacca gggaacanac tcacaagctt taactaagta 540
antgtngnat naccgncngn c 561

```

&lt;210&gt; 197

&lt;211&gt; 691

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 197

```

cgccacaacc acaaccagca ccacagcctc caccacccca gcagcagccg caacagcagc 60
cgcagcctca gccccagcag cctccacccc caccacctcc ccagcagcag cccccgctgt 120
cacagtgtan tatgaataac agtttcaccc cagctcctat gatcatggag ataccagaat 180
ctggaagcac tgggaacata agtatctatg agaggattcc aggggatttt ggtgccggca 240
gctactctca accatcagcc accttcagcc tagccaagct gcagcagctg accaacacca 300
ttatggaccc tcatgccatg ccttatagcc attctcctgc tgtgacttcc tatgcaacca 360
gtgtttctct gtccaataca ggactggctc agctggctcc atctcatccc ttagctggga 420
ctcctcaagc acangccacc atgacgccac ccccaaactt ggcattccact accatgaacc 480
tcacatctcc tctgcttcag tgcaacatgt ctgccacca cattggcatt cctcacagc 540
aggagattgc aaggggcaaat gccagtgaag gggcacattt ccatccgctc caagtttggc 600
ggcactgccc tctgcngctg ctcaccanna ngcagctggt atgggcccgt tccccaatcg 660
ggcagtttgc caatgcaang gcttggggccc t 691

```

&lt;210&gt; 198

&lt;211&gt; 646

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 198

```

acctatccct ggagcaagta ataggaagag aatgggcaaa ctggttgac gagagaaaag 60
agaatggagt tgggagcaac acatgaactt gcgttataac attctgctgt ccagatctgc 120
cctactgtgc tgggtgctcg tctgtccctc ttctcattag ccactcacag gagaggtgct 180
tgtgactctt gattcacagg ggatgaactc aggatctcaa aagacataca aaaactanag 240
gtatgtatca cttaagtagc tacgaaactc acaccgtgat ctcccttctg acacacatct 300
gagccatctc ttccaacata aaatanactg tttcaatggg ttgtcagtta tttttcaaat 360
cactaanatg tacagtcctc caccaacaat ttaagaaaga acctagagg caaatcactg 420
gggactgcta tttgagtttt atcagtcaaa ggctcaagca tcaanaccct cagttancat 480
ttcaaagtac atactangaa acancgaggc tgggtggcgt tgtgtgcgtt anggctgatt 540
caccaggtgg taaanaca aagnggttaa gnctcncctt tttggattgt taattgncca 600
tcctcnattc ctccaaaagg gctgggattt ggatttggca aagtca 646

```

&lt;210&gt; 199

&lt;211&gt; 811

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 199

```

cggcgcgct ccaggtgctg acagcgcgag agagcgcggc cctcaggagc aaggcgaatg 60
tatgacaaca tgtccacaat ggtgtacata aaggaagaca agttggagaa gcttacacag 120
gatgaaatta tttctaagac aaagcaagta attcaggggc tggaagcttt gaagaatgag 180
cacaattcca ttttacaag tttgctggag aactgaagt gtttgaagaa agatgatgaa 240
agtaatttgg tggaggagaa atcaaactg atccggaagt cactggagat gttggagctc 300
ggcctgagtg aggcacaggt tatgatggct ttgtcaaact acctgaatgc tgtggagctc 360

```

gagaagcaga aactgcgtgc gcagggttcgt cgtctgtgcc aggagaatca gtggctacgg	420
gatgaactgg ccaacacgca gcagaaactg cagaagagtg agcagtctgt ggctcaactg	480
gaggaggaga agaagcatct ggagtttatg aatcagctaa aaaaatatga tgacgacatt	540
tccccatccg aggacaaaga cactgattct accaaagagc ctctggatga ctttttcccc	600
aatgatgaag acgacccagg gcaaggaatc cagcagcagc acagcagtgc agccgcggct	660
gcccagcaag gcngctacna agattcccgc gcggctgcgg acgtccaca acctgggtga	720
ttcagttcgc ctcnncangg ggccgctacc aaggtaacct gttgccccct cctggcacaag	780
caaggncctt gggaagggan cctgggagga a	811

&lt;210&gt; 200

&lt;211&gt; 763

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 200

acacagtaaa tggattttat taatacagtt tatattacta agtacatattc tggcaaagct	60
acatgtatac agaaatcagg aaccccccca aaaaggacag cagcaccgaa aggaatggcc	120
agttcacaga gaggtgcagc tctgacaaga tcctagaggc tgctagacac agcgggcagc	180
actggagaga gaagggaagc tgcgggaggc gccaccgctc atgcaggaga cagtgtgaga	240
gtcacgggcg gctaggccat gggacgctga gcaagtcatg taaccagccc gagcttcatt	300
ttctcattt cctcccctcc gtcaggcca ctctcgact tgaccagctc cacgttgagg	360
ctctcagggc tctgcgctt ctccatgttc tcagggtcat tgagcacttc tgccaccctc	420
tgtttgtaga cattgtcaag accctgttta cgagacctca tagcagcttc ttctaactgt	480
tctgcagctt caaatttgcc ttgacgtctg taaagtgcc caaggttttt tagagtgggt	540
gtaacagttg gntatcaac tttgcangct ttgtaccaac cgccatactc tccaaaaaga	600
tgtcccatcc ttttgcttcc ctttgcatcc ttctctttcc tcaacaatgc atccaaatgg	660
gtttaatttc aacatctaca gaacaaact ccctttcatg tgcacaagtg agaatcnctt	720
tgtacantgt ttccgccttc cttgaacntt ccctggttca aaa	763

&lt;210&gt; 201

&lt;211&gt; 717

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 201

ggcgaatgta tgacaacatg tccacaatgg tgtacataaa ggaagacaag ttggagaagc	60
ttacacagga tgaattattt tctaagacaa agcaagtaat tcaggggctg gaagctttga	120
agaatganca caattccatt ttacaaagt tgcgtggagac actgaagtgt ttgaagaaag	180
atgatgaaaag taatttggtg gaggagaaat caaacatgat ccggaagtca ctggagatgt	240
tggagctcgg cctgagttag gcacagggtta tgatggcttt gtcaaatcac ctgaatgctg	300
tggagtccga gaagcagaaa ctgcgtgcgc aggttcgctg tctgtgccag gagaatcagt	360
ggctacggga tgaactggcc aacacgcagc aagaaactgc agaagagtga gcagtctgtg	420
gctcaactgg aggaggagaa gaagcatctg gagtttatga atcagctaaa aaaatatgat	480
gacgacattt ccccatccga gggacaaaaga cactgattct accaaagagc ctccggatga	540
ccttttcccc aatgatgaag acgaccccag ggcaaggga tccancagca gcacagcaan	600
ttgcagccgc ggctgcccga gcaaggcggc tacgagattc ccgcccggc tgccggacgc	660
tccacaacct ggtnatccaa tacgccctcn caaggggcgc taccaagggt aactgtt	717

&lt;210&gt; 202

&lt;211&gt; 647

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 202

cagtcggagt gagtttatta gaagttagaa agacacaaat acacaaatca ctgagcactt	60
---	----



caagattagt	agagaaaagc	agaatgcccc	aatttcacac	acagactaca	cagcaaattgc	120
tactggggca	tatcctaggg	agacccggag	tccgagcggg	gccccagg	ctctaagtac	180
cacggagcac	gtgcggcaca	tgccttgctg	taaggcttag	ttacgtcaac	aggtcaccgt	240
catgccattg	caacaacacc	ttgtgtgaca	cttaactacc	tgttaccaaa	gtgaacagct	300
aatcgctctt	aattttttaa	ctcgtgtatt	acacagtaaa	tggattttan	taatacagtt	360
tatattacta	agtacatatc	tggcaaagct	acatgtatac	agaaatcagg	aaccccccca	420
aaaaggacag	cagcaccgaa	aggaatggcc	agttcacaga	nangtgcagc	tctgacaaga	480
tcctagangc	tgctagacac	agcgggcagc	actggganaa	gagaagggaa	gctgcgggag	540
gcgccaaccc	gtcatgccag	gggacagtgt	ganagtcacg	ggncgggcta	ngccaatggg	600
aacnctgan	gcaangcagt	ttaaccangc	cccngggctt	caattttt		647

&lt;210&gt; 203

&lt;211&gt; 786

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 203

cagccatgga	cgccatcaag	aagaagatgc	agatgctgaa	gctggacaag	gagaacgcca	60
tcgaccgcgc	cgagcaggcc	gaagccgaca	agaagcaagc	tgaggaccgc	tgcaagcagc	120
tggaggagga	gcagcaggcc	ctccagaaga	agctgaaggg	gacagaggat	gaggtggaaa	180
agtattctga	atccgtgaag	gaggcccagg	agaaactgga	gcaggccgag	aagaaggcca	240
ctgatgctga	ggcagatgtg	gcctccctga	accgccgcat	tcagctggtt	gaggaggagc	300
tggaccgggc	ccaggagcgc	ctggctacag	ccctgcagaa	gctggaggag	gccgagaagg	360
cggctgatga	gagcgagaga	ggaatgaagg	tcacgaaaaa	ccggggccatg	aaggatgagg	420
agaagatgga	actgcaggag	atgcagctga	aggaggccaa	gcacatcgct	gaggattcag	480
accgcaaata	tgaagaggtg	gccaggaagc	tggtgatcct	ggaaggagag	ctggagcgct	540
cggaggagan	ggctgaggtg	gccgagagcc	gagccagaca	gctggaggag	gaacttcgaa	600
ccatggacca	ngccctcaag	tccttgatgg	cctcanagga	ggagtattcc	accaaagaag	660
attaataatga	agaggagatn	aaactgttgg	anggagaagc	tgaanggagg	ctganacccc	720
aagcaaaaagt	ttgccnaaaa	ggtctgtggg	caaaaatttg	ggngaaaaac	catcnaatga	780
acctta						786

&lt;210&gt; 204

&lt;211&gt; 738

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 204

ggctagtaac	atcagtttta	ttgggttggg	gtggcaacca	tagcctggct	gggggtgggg	60
ctggccctca	caggttggtg	agttccagca	gggtctggtc	caaggtcttg	tgaatctcga	120
cgttctcttc	cttggcactg	gccaaggtct	cttctaggtc	atcgatggtt	ttctccaact	180
ttgccacaga	cctctcggca	aactctgctc	gggtctcagc	ctccttcagc	ttctcctcca	240
acagtttgat	ctcctcttca	tatttatctt	ctttggtgga	atactcctcc	tctgaggcca	300
tcagggaactt	gagggccttg	tccatggttc	gaagtctctc	ctccagctgt	ctggctcggc	360
tctcggccac	ctcagccctc	tcctccgagc	gtccagctc	tccttcagg	atcaccagct	420
tcctggccac	ctcttcatat	ttgcggcttg	aatcctcagc	gatgtgcttg	gcctccttca	480
gctgcacatc	ctgcagttcc	atcttctcct	catccttcat	ggcccgggtt	tcnatgacct	540
tcattcctct	ctcgtcttca	tcagcccgc	ttctcggtc	ctccagcttc	tgcanggctg	600
tanccaangc	gntcctgggc	ccggtcaanc	tcctctctca	caagctgaat	gcggcggttc	660
aaggaaggca	anatctgcct	caacaacaat	tggccttctt	cncggccngc	tccaattttc	720
ncngggggcc	tccttcaa					738

&lt;210&gt; 205

&lt;211&gt; 818

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 205

gctagtaaca	tcagttttat	tgggttggg	tggcaaccat	agcctggctg	ggggtggggc	60
tggccctcac	aggttggtga	gttccagcag	ggtctgggtc	aaggtctggt	gaatctcgac	120
gttctcctcc	ttggcactgg	ccaaggtctc	ttctaggtca	tcgatggttt	tctccaactt	180
tgccacagac	ctctcggcaa	actctgctcg	ggtctcagcc	tccttcagct	tctcctccaa	240
cagtttgatc	tcctcttcat	atztatcttc	tttgggtgaa	tactcctcct	ctgaggccat	300
cagggacttg	agggcctggt	ccatggttcg	aagttcctcc	tccagctgtc	tggtctggct	360
ctcggccacc	tcagccctct	cctccgagcg	ctccagctct	ccttccagga	tcaccanctt	420
cctggccacc	tcttcatatt	tgcggtctga	atcctcagcg	atgtgcttgg	cctccttcag	480
ctgcactctc	tgcagttcca	tcttctcctc	atccttcaag	gcccggtttt	cgatgancct	540
tcattctctc	ctcggctctc	atcagccgcc	ttctcgggct	cntccaagct	tctgcaaggc	600
tgtanncann	ggctcctggg	gcccgggtnc	aagntcctcc	tcaaacangc	tnaaatncca	660
gagggtttca	nggaagggcc	aaaatctggc	ctnnagnatc	aattggcttt	cttnncgggg	720
nctngcncca	attttctecn	ggggcctncc	tttcangggg	tnaagaanaa	atttcaaatt	780
caacctcggt	cccccttnaa	cntcntnctg	gaagggct			818

&lt;210&gt; 206

&lt;211&gt; 927

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 206

cagccatgga	cgccatcaag	aagaagatgc	agatgctgaa	gctggacaag	gagaacgcca	60
tcgaccgcgc	cgagcaggcc	gaagccgaca	agaagcaagc	tgaggaccgc	tgcaagcagc	120
tggaggagga	gcagcaggcc	ctccagaaga	agctgaaggg	gacagaggat	gaggtggaaa	180
agtattctga	atccgtgaag	gagggccagg	agaaactgga	gcaggccgag	aagaaggcca	240
ctgatgctga	ggcagatgtg	gcctccctga	accgccgcat	tcagctgggt	gaggaggagc	300
tggaccgggc	ccaggagcgc	ctggctacag	ccctgcagaa	gctggaggag	gccgagaagg	360
cggctgatga	gagcgagaga	ggaatgaagg	tcacgaaaaa	ccggggccatg	aaggatgagg	420
agaagatgga	actgcaggag	atgcagctga	aggaggccaa	gcacatcgct	gaggattcag	480
accgcaaata	tgaagagggtg	gccaggaagc	tggtgatcct	ggaaggagag	ctggagcgct	540
cggaggagag	ggctgagggtg	gccgagagcc	gagccagaca	gctggaggag	gaacttcgaa	600
ccatggacca	ggccctcaag	tcctctgatg	cctcagagga	ggagtattcc	accaaagaag	660
ataaatatga	agaggagatc	aaactgttgg	aggagaagct	gaaggaggct	gagaccgag	720
cagagtttgc	cgagagggtc	gtggcaaatg	tgagaaaaac	catcgatgac	ctagaagaga	780
ccttggccag	tgcccaaggag	gagaacgtcg	agattcacca	gaccttgagc	cagaccctgc	840
tggaaactca	caacctgtga	gggccagccc	cacccccagc	caggctatgg	ttgccacccc	900
aaccaataaa	aactgatggt	actagcc				927

&lt;210&gt; 207

&lt;211&gt; 910

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 207

ggaagatggc	ggcgccggtt	ccacagcggg	cgtggaccgt	ggagcagctg	cgcagtgagc	60
agctgcccac	gaaggacatt	atcaagtttc	tgcaggaaca	cggttcagat	tcgtttcttg	120
cagaacataa	attattagga	aacattaaaa	atgtggccaa	gacagctaac	aaggaccact	180
tggttacagc	ctataaccat	ctttttgaaa	ctaagcgttt	taagggtact	gaaagtataa	240
gtaaagtgtc	tgagcaagta	aaaaatgtga	agcttaatga	agataaaccc	aaagaaacca	300
agtctgaaga	gaccctggat	gaggggccac	caaaatatac	taaatctgtt	ctgaaaaagg	360
gagataaaaac	caactttccc	aaaaagggag	atgtgtttca	ctgctgggtat	acaggaacac	420
tacaagatgg	gactgttttt	gatactaata	ttcaaacaaag	tgcaaaagaag	aagaaaaatg	480

ccaagccttt aagttttaag gtcggagtag gcaaagttat cagaggatgg gatgaagctc	540
tcttgactat gagtaaagga gaaaangctc gactggagat tgaaccagaa tgggcttacg	600
gaaagaaagg acagcctgat gccaaaattc caccaaatgc aaaactcact tttgaagtgg	660
nantatggga tattgattga aatagcagtg cntcagctcn aggnatttag caacaatgat	720
taaaacntgg ncttgaaaga aaatttcaca actagttnag aaacttgta ccaaatggta	780
aaggaaaaag tcaactggga aaaattcaag gngttaaana aaaanttggt ttacctgggg	840
cccaagcctt ttgngaaaaa aaaanccctt tatgaaancc ccngggccca aaaanacttt	900
tccnaaaacc	910

<210> 208  
 <211> 745  
 <212> DNA  
 <213> Homo Sapiens

<400> 208	
gacagtggat caatttttat tgagccactt aagttttaca catgaggtaa aaggaaaaag	60
ttctccttga ccagtatttt acacagctgt aggaaagtat tttagaccag ggattcataa	120
gggatttatc tctcaaaagc tgggaccaag taaacaaatt ttattaactc cttgaatttt	180
ccagttgact ctctcctttac aatagtaaca agttcctaact agttgtgtaa atttcttcaa	240
ggccaagtgtt tatcattggt gctaatatcc ttagagctga agcactgcta tttcaatcaa	300
tatccactaa ttccacttca aaagtgagtt ttgcatttgg tggatttttg gcatcaggct	360
gtcctttctt tccgtaagcc cattctggtt caatctccag tcgagccttt tctcctttac	420
tcatagtcaa gagagcttca tcccatcctc tgataacttt gcctactccg accttaaaac	480
ttaaaggctt ggcatttttc ttcttctttg cacttggttg aatattagta tcaaaaacag	540
tcccatcttg tagtgctcct gtataccaag caagtgaaca acatcnccct ttttgggaaa	600
gttggtttta cccctttttt cagaacagat ttaagtanat tttgggggac cctcanccaa	660
ggggtcnctt canaactggg ttctccttggg gtttaacctt cattnagcct canaattttt	720
tacntggccn cagacacttt tactt	745

<210> 209  
 <211> 965  
 <212> DNA  
 <213> Homo Sapiens

<400> 209	
ggaagatggc ggcggccggt ccacagcggg cgtggaccgt ggagcagctg cgcagtgagc	60
agctgcccac gaaggacatt atcaagtttc tgcaggaaca cggttcagat tcgtttcttg	120
cagaacataa attattagga aacattaaaa atgttggccaa gacagctaac aaggaccact	180
tggttacagc ctataacat ctttttgaaa ctaagcgttt taagggtact gaaagtataa	240
gtaaagtgtc tgagcaagta aaaaatgtga agcttaatga agataaaccc aaagaaacca	300
agtctgaaga gaccctggat gagggtccac caaaatatac taaatctgtt ctgaaaaagg	360
gagataaaac caactttccc aaaaaggag atgttgttca ctgctggtat acaggaacac	420
tacaagatgg gactgttttt gatactaata ttcaaacaag tgcaaagaag aagaaaaatg	480
ccaagccttt aagttttaag gtcggagtag gcaaagttat cagaggatgg gatgaagctc	540
tcttgactat gagtaaagga gaaaaggctc gactggagat tgaaccaaga atgggcttac	600
ggaaagaaag gacagcctga tgccaaaatt ccaccaaatg caaaactcac ttttgaagtg	660
gaattagtgg atattgattg aaatagcagt gcttcagcct ccaagggata ttagcaacaa	720
tgaataaaac tttggncttg angaaaattt acacaacctt gtttagaacc ttgttactat	780
tgttaaagga aagaagtcaa ctgggnaaaa ttcaaggagg ttaataaaat ttgtttactt	840
ggnccagcc ttttgagaga taaatccctt angaaancct gggtccnaaaa tactttccta	900
aagnctgtgt taaataccng ggncaagggn gaaacttttt ccctttaccn caagggtggt	960
aaact	965

<210> 210  
 <211> 867

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 210

caagacagtg	gatcaatttt	tattgagcca	cttaagttta	caacatgagg	taaaaggaaa	60
aagttctcct	tgaccagtat	tttacacagc	tgtaggaaag	tatttttagac	cagggattca	120
taagggattt	atctctcaaa	agctgggacc	aagtaaaca	attttattaa	ctccttgaat	180
tttccagttg	actcttcctt	tacaatagta	acaagttcta	actagttgtg	taaatttctt	240
caaggccaag	ttttatcatt	gttgctaata	tccttagagc	tgaagcactg	ctatttcaat	300
caatatccac	taattccact	tcaaaagtga	gttttgcat	tggtggaatt	ttggcatcag	360
gctgtccttt	ctttccgtaa	gcccattctg	gttcaatctc	cagtcgagcc	ttttctcctt	420
tactcatagt	caagagagct	tcattcccatc	ctctgataac	tttgctact	cgcaccttaa	480
aacttaaagg	cttggcattt	ttcttcttct	ttgcacttgt	ttgaatatta	gtatcaaaaa	540
cagtcccatc	ttgtagtgtt	cctgtatacc	angcagtga	caacatctcc	ctttttggga	600
aagtttgggt	ttaactccct	tttttcagaa	caagatttag	taaaaatttg	gnnggacctt	660
caatccaagg	gtctcttcaa	nacttgggtt	cctttggggt	ttaancctca	attaagcctc	720
acaatttttt	acttggctca	agaaancntt	tacttaaacc	tttcaggtac	cctttaaaaa	780
nccttangtt	ttaaaaaaaa	tgggttataa	gggctggtaa	ccnaagggtg	ggcccttggt	840
aaccngttct	tggggcaaaa	tttttaa				867

&lt;210&gt; 211

&lt;211&gt; 972

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 211

ggaagatggc	ggcgccggtt	ccacagcggg	cgtggaccgt	ggagcagctg	cgcagtgagc	60
agctgcccaa	gaaggacatt	atcaagtctt	tgcaggaaca	cgggttcagat	tcgtttcttg	120
cagaacataa	attattagga	aacattaaaa	atgtggccaa	gacagctaac	aaggaccact	180
tggttacagc	ctataaccat	ctttttgaaa	ctaagcgttt	taagggtact	gaaagtataa	240
gtaaagtgtc	tgagcaagta	aaaaatgtga	agcttaatga	agataaaacc	aaagaaacca	300
agtctgaaga	gaccttggtt	gaggggtccac	caaaatatac	taaatctgtt	ctgaaaaagg	360
gagataaaac	caactttccc	aaaaaggagg	atgttggtca	ctgctggtat	acaggaacac	420
tacaagatgg	gactgttttt	gataactaata	ttcaaacaa	tgcaaagaag	aagaaaaaatg	480
ccaagccttt	aagttttaag	gtcggagtag	gcaaagttat	cagaggatgg	gatgaagctc	540
tcttgactat	gagtaaaagg	gaaaaggctc	gactggagat	tgaaccagaa	tgggcttacg	600
gaaagaaagg	acagcctgat	gccaaaattc	caccaaattg	aaaactcact	ttgaagtgg	660
aattagtggg	tattgattga	aatagcagtg	cttcagctct	aaggatatta	gcaacaatga	720
taaaacttgg	ccttgaagaa	atttacacaa	ctagttagaa	cttggtacta	ttgtaaagga	780
agagtcaact	ggaaaattca	aggagttaat	aaaatttggt	tacttggtcc	cagcttttga	840
gagataaatc	ccttatgaat	ccctgggtcta	aaatactttc	ctacagctgt	gtaaaaatact	900
ggtcaaggag	aactttttcc	ttttacctca	tgttgtaaac	ttaagtggct	caataaaaaat	960
tgatccactg	tc					972

&lt;210&gt; 212

&lt;211&gt; 817

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 212

aacggctcta	agggttatgc	ctttgtccac	ttcgagaccc	aagaggctgc	cgacaaggcc	60
atcgagaaga	tgaatggcat	gtctctcaat	gaccgcaaag	tatttgtggg	cagattcaag	120
tctcgcaaag	agcgggaagc	tgagcttgga	gccaaagcca	aggaattcac	caatgtttat	180
atcaaaaact	ttggggaaga	ggtggatgat	gagagtctga	aagagctatt	cagtcagttt	240
ggtaagaccc	taagtgtcaa	ggtgatgaga	gatcccaatg	ggaaatccaa	aggctttggc	300

tttgtgagtt	acgaaaaaca	cgaggatgcc	aataaggctg	tggaaagagat	gaatggaaaa	360
gaaataaagt	gtaaaatcat	atattgtaggc	cgtgcacaaa	agaaagtaga	acggcaggca	420
gagttaaaa	ggaattttga	acagttgaaa	caggagagaa	ttagtcgata	tcaggggggtg	480
aatctctaca	ttaagaactt	ggatgacact	attgatgatg	agaaattaag	gaaagaattt	540
tctccttttg	gatcaattac	cagtgcctaag	gtaatgctgg	aggatggaag	aagcaaagg	600
tttggcttcg	tctgcttctc	atctcctgaa	gaancaacca	aagcagtcac	tggagatgaa	660
tggacgcatt	ttggggctcc	aaccactata	tgttgccctg	gccccanagg	aagggaanag	720
agaaaggntc	accttgacca	accagtttta	tgcaacgaan	tggctgggaa	tngagaacca	780
cttcccngcc	aatgccaatc	tttaaantca	gnttcca			817

&lt;210&gt; 213

&lt;211&gt; 756

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 213

ctttgatgtg	attaaggga	agccaatccg	catcatgtgg	tctcagaggg	atccctcttt	60
gagaaaaatc	ggtgtggga	acgtcttcat	caagaacctg	gacaaatcta	tagataacaa	120
ggcactttat	gatacttttt	ctgcttttgg	aaacatactg	tcctgcaagg	tgggtgtgtga	180
tgagaacggc	tctaagggtt	atgcctttgt	ccacttcgag	acccaagagg	ctgccgacaa	240
ggccatcgag	aagatgaatg	gcatgctcct	caatgaccgc	aaagtatttg	tgggcagatt	300
caagtctcgc	aaagagcggg	aagctgagct	tggagccaaa	gccaaggaat	tcaccaatgt	360
ttatatcaaa	aactttgggg	aagaggtgga	tgatgagagt	ctgaaagagc	tattcagtca	420
gtttggttaag	accctaagtg	tcaaggtgat	gagagatccc	aatgggaaat	ccaaaggcctt	480
tggctttgtg	agttacgaaa	aacacgagga	tgccaataag	gctgtggaag	agatgaatgg	540
aaaagaaata	agtggtaaaa	tcatatttgt	aggccgtgca	caaaagaaag	tagaacggca	600
agcagagtta	aaacgggaaat	ttgaacagtt	gaaacaggag	agaattagtc	gatatcangg	660
ggtgaatccc	cacattaaga	acttggatga	cactattgat	gatgaagaaa	attaaggaaa	720
agaattttcn	ccntttggga	tnaattaaca	agttgc			756

&lt;210&gt; 214

&lt;211&gt; 728

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 214

atggagattt	ttttctttta	ttgggaaacg	taagacttgg	gtacatcaaa	taaaaccaat	60
ttctggggga	aaaaatcaaa	nccacaata	aaaaaaaagt	taacactgtc	tgggccacag	120
cagaacccaa	agaacatatt	cgtataattg	aaaaattcta	ggtgcttcat	aattgacctt	180
ttgatacaaa	atgacctatt	aaatttgcaa	tttghtaatcc	ttggtgttga	ggtccatagg	240
acaagctagg	aagtcttcaa	accttgagtt	gaattccata	aggggttatt	tggcttttga	300
atcgggtttt	ccttgtctaa	gaggtagcag	cagcaacagc	gcccaccttc	tgggcagctt	360
ctttcttggc	atgatgagcc	tgtagaactg	ctacagcttc	atccaccttg	gagcggagag	420
actcggggga	ctctaacatg	tgacgcagct	canagttgtc	tatctccagc	agcattccc	480
tgatcttccc	agccagattt	gaatgcattg	tttggatgan	tgggaacaag	cgttctccca	540
gcatctgctt	ctgttcctgg	gggggtgctg	canccaacag	gaggcaatca	ntggntccng	600
gccctgcaca	tggaccgcaa	ggctgggggtg	cctgcaaaan	gctgtatggc	aaggatgaag	660
ggctgccgac	actgggaagg	cggtattngt	aggggggcaa	aaancccg	gaagcancag	720
caacaaca						728

&lt;210&gt; 215

&lt;211&gt; 710

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 215

atgganattt	tttttcttta	ttgggaaacg	taagacttgg	gtacatcaaa	taaaaccaa	60
atctggggga	aaaaatcaaa	accacaata	aaaaaaaagt	taacactgtc	tgggccacag	120
canaacccaa	agaacatatt	cgtataattg	aaaaattcta	ggtgcttcan	aattgacctt	180
ttgatacaaa	atgacctatt	aaatttgcaa	tttgtaancc	ttggtgttga	ggtccatagg	240
acaagctagg	aagtcttcaa	accttgagtt	gaattccana	aggggttatt	tggcttttga	300
atcggttttt	ccttgcttaa	naggtagcag	cagcaacagc	gcccaccttc	tgggcagctt	360
ctttcttggc	atgatgagcc	tgtanaactg	ctacagcttc	atccaccttg	gagcgganag	420
actcggggga	ctctaacatg	tgcagcagct	canagtgtgc	tatctccagc	agcattcccg	480
tgatcttccc	agccagattt	gaatgcattg	tttgatgan	tgggaacaag	cgttctccca	540
gcactctgct	ctgttcctgn	gggggtgctg	canccangca	tggaggcaan	tcagtggctc	600
ctgcccctgc	acaatggacc	gcaaggctgg	ggggtgcctg	canaaggctg	tttgggcaag	660
gangaagggc	ctgcggaana	ctgggangcg	tatttgttan	ggggggcaaa		710

&lt;210&gt; 216

&lt;211&gt; 824

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 216

catggcctcc	ctgtacgtgg	gcgacctgca	ttcggacgtc	accgaggcca	tgtgttacga	60
aaagttcagc	ccgcgggggc	ctgtgctgtc	catccgggtc	tgccgcgata	tgatcacccg	120
ccgctccctg	ggctatgcct	acgtcaactt	ccagcagccg	gccgacgctg	agcgggcttt	180
ggacaccatg	aactttgatg	tgattaaggg	aaagccaatc	cgcacatgtg	ggtctcagag	240
ggatccctct	ttgagaaaat	ctgggtgtgg	aaacgtcttc	atcaagaacc	tggacaaatc	300
tatagataac	aaggcacttt	atgatacttt	ttctgctttt	ggaaacatac	tgtcctgcaa	360
ggtggtgtgt	gatgagaacg	gctctaaggg	ttatgccttt	gtccacttcg	agacccaaga	420
ggctgcccgc	aaggccatcg	agaagatgaa	tggcatgtc	ctcaatgacc	gcaaagtatt	480
tgtgggcaga	ttcaagtctc	gcaaagagcg	ggaagctgag	cttggagcca	aagccaagga	540
attcaccaat	gtttatatca	aaaactttgg	ggaanagggtg	gatgatgaga	gtctgaaaga	600
agctattcan	tcaagtttgg	taagacccta	agtgtcaang	tgatgagaga	tccaatggga	660
aatccaaaag	gctttgggct	ttgtgagtn	acgaaaaaca	cnaggatgcc	aataaggctg	720
ttggaaagaa	atgaatggga	aaagaaataa	antggtaaaa	tcataatttg	tagggccgtn	780
cacaaaaaga	aagtttaaac	gggnaggcaa	aatttaaaac	cggg		824

&lt;210&gt; 217

&lt;211&gt; 749

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 217

atggagattt	tttttcttta	ttgggaaacg	taagacttgg	gtacatcaaa	taaaaccaat	60
ttctggggga	aaaaatcaaa	accacaata	aaaaaaaagt	taacactgtc	tgggccacag	120
cagaacccaa	agaacatatt	cgtataattg	aaaaattcta	ggtgcttcat	aattgacctt	180
ttgatacaaa	atgacctatt	aaatttgcaa	tttgtaatcc	ttggtgttga	ggtccatagg	240
acaagctagg	aagtcttcaa	accttgagtt	gaattccata	aggggttatt	tggcttttga	300
atcggttttt	ccttgcttaa	gaggtagcag	cagcaacagc	gcccaccttc	tgggcagctt	360
ctttcttggc	atgatgagcc	tgtagaactg	ctacagcttc	atccaccttg	gagcgagag	420
actcggggga	ctctaacatg	tgcagcagct	cagagtgtgc	tatctccagc	agcattcccg	480
tgatcttccc	agccaagatt	tgaatgcatt	gtttggatga	gtgggaacaa	gcgttctccc	540
agcatctgcn	tctgttctcg	gggggtgctg	gcatccagca	tgggangan	tcagtggctc	600
ctgcccctgc	acatgggacc	gcaaggctgg	ggtgcctgca	naggctgtat	gggaaggatg	660
nagggtgcc	ggncaactgg	ganggcgtat	ttgtaggggg	caaacaagcc	cggggaagca	720
nccagcagca	acancaacng	cttggcgcc				749

<210> 218  
 <211> 600  
 <212> DNA  
 <213> Homo Sapiens

<400> 218  
 ctttattggg aaacgtaaga cttgggtaca tcaaataaaa ccaatttctg ggggaaaaaa 60  
 tcaaaaccca caataaaaaa aaagttaaca ctgtctgggc cacagcagaa cccaaagaac 120  
 atattcgtat aattgaaaaa ttctaggtgc ttcataattg accttttgat acaaaatgac 180  
 ctattaaatt tgcaatttgt aatccttggg gttgaggtcc ataggacaag ctaggaagtc 240  
 ttcaaacctt gagttgaatt ccataagggg ttatttggct tttgaatcgg tttttccttg 300  
 tctaagaggt agcancagca acagcgccca ctttctgggc agcttctttc ttggcatgat 360  
 gancctgtag aactgctaca gcttcatcna ctttggagcg gngagactcg ggggactcta 420  
 acatgtgcag cagctcagag ttgtcnatct ccaagcagca ttcccgatgat cttcccagcc 480  
 anatttgaat gcattgtttg ggatgangtg gggaanaagc gttctcncag cannngcctt 540  
 cnggtncenn ggaggggggt gcntgcaagc ccagcattga aggcaagttc antggctcct 600

<210> 219  
 <211> 1077  
 <212> DNA  
 <213> Homo Sapiens

<400> 219  
 catggcctcc ctgtacgtgg ggcacctgca ttcggaagtc accgaggcca tgctgtacga 60  
 aaagttcagc cccgcggggc ctgtgctgtc catccgggtc tgccgcgata tgatcacccg 120  
 ccgctccctg ggctatgcct acgtcaactt ccagcagccg gccgacgctg agcgggcttt 180  
 ggacaccatg aactttgatg tgattaaggg aaagccaatc cgcacatcatg ggtctcagag 240  
 ggatccctct ttgagaaaaat ctgggtgtggg aaacgcttct atcaagaacc tggacaaatc 300  
 tatagataac aaggcacttt atgatacttt ttctgttttt ggaaacatac tgtcctgcaa 360  
 ggtggtgtgt gatgagaacg gctotaaggg ttatgccttt gtccacttcg agaccaaga 420  
 ggctgccgac aaggccatcg agaagatgaa tggcatgctc ctcaatgacc gcaaagtatt 480  
 tgtgggcaga ttcaagtctc gcaaagagcg ggaagctgag cttggagcca aagccaagga 540  
 attcaccaat gtttatatca aaaacttttg ggaagaggtg gatgatgaga gtctgaaaga 600  
 gctattcagt cagtttggtg agaccctaag tgtcaagggtg atgagagatc ccaatgggaa 660  
 atccaaaggc tttggctttg tgagttacga aaaacacgag gatgccata aggctgtgga 720  
 agagatgaat ggaaaagaaa taagtgttaa aatcatattt tagggccgtg caaaaagaa 780  
 agtagaacgg caagcagagt taaaacggaa atttgaacag ttgaaacagg agagaattag 840  
 tcgatatcan ggggtgaatc ccacatttaa gaacttggat gacactattg atgatgagaa 900  
 attaaggaaa gaattttctc cttttggatc aattaccagt gctaaggtaa tgctggagga 960  
 tgaagaagc aaagggtttg gcttcgtctg cttctcatct cctgaagaan caaccaagc 1020  
 agtcactgga gatgaatgga cgcatttttg ggctccaacc actatatgtt gccttg 1077

<210> 220  
 <211> 1007  
 <212> DNA  
 <213> Homo Sapiens

<400> 220  
 actacatcga tcgcgtggac gagcccttgt cctgctctta tgtgctgacc attcgactc 60  
 ctcggtctctg cccccaccct ctctccggc cccaccag tgctgcaccg caggccatcc 120  
 tctgtcacc cctcctacag cctgaggagt acatggccta cgttcagagg caagccgact 180  
 caaagcagta tggagataaa atcatagagg agctgcaaga tctaggcccc caagtgtgga 240  
 gtgagaccaa gtctgggggtg gcaccccaaa agatggcagg tgcgagcccc accaaggatg 300  
 acagtaagga ctcagatttc tggaaagatgc ttaatgagcc agaggaccag gccccaggag 360  
 gggaggaggt gccggctgag gagcaggacc caagccctga ggcagcagat tcagcttctg 420

gtgctcccaa	tgattttcag	aacaacgtgc	aggtcaaagt	cattcgaagc	cctgcggatt	480
tgattcgtt	catagaggag	ctgaaaggtg	gaacaaaaaa	ggggaagcca	aatataggcc	540
aagagcagcc	tgtggatgat	gctgcagaag	tccctcagag	ggaaccagag	aaggaaaggg	600
gtgatccaga	acggcagaga	gagatggaag	aagaggagga	tgaggatgag	gatgaggatg	660
aagatgagga	tgaacggcag	ttactgggag	aatttgagaa	ngaactggaa	gggatcctgc	720
ttccgtcaga	ccgagaccgg	ctccgttcgg	aggtgaangc	tggcatggag	ccgggaactg	780
gnaaacatca	tccaggagac	angagaaaaga	nctgggaccc	anatggggct	gaagaangga	840
tcagaatccg	ggatcgggca	atgctggctc	tcaaaatcaa	ctctcaacaa	antcattaaa	900
aagactggag	ggaaaaacaa	gagttccaaa	ncctggtgaa	nnaagcncat	aaaaaagaag	960
gttgtcccaa	aaaagnctcc	cccatcaanc	caaccctnca	gggaaaa		1007

&lt;210&gt; 221

&lt;211&gt; 833

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 221

ccgactcaaa	gcagtatgga	gataaaatca	tagaggagct	gcaagatcta	ggcccccag	60
tgtggagtga	gaccaagtct	gggtgggcac	cccaaaagat	ggcaggtgcg	agcccgacca	120
aggatgacag	taaggactca	gatttctgga	agatgcttaa	tgagccagag	gaccaggccc	180
caggagggga	ggaggtgccg	gctgaggagc	aggacccaag	ccctgaggca	gcagattcag	240
cttctggtgc	tccaatgat	tttcagaaca	acgtgcaggt	caaagtcat	cgaagccctg	300
cggatttgat	tcgattcata	gaggagctga	aaggtggaac	aaaaaagggg	aagccaaata	360
taggccaaga	gcagcctgtg	gatgatgctg	cagaagtccc	tcagagggaa	ccagagaagg	420
aaaggggtga	tccagaacgg	cagagagaga	tggaagaaga	ggaggatgag	gatgaggatg	480
aggatgaaga	tgaggatgaa	cggcagttac	tgggagaatt	tgagaangaa	ctggaaggga	540
tctctgttcc	gtcagaccga	gaccggctcc	gttcggaggt	gaangctggc	atggagccgg	600
gaactggnaa	acatcatcca	ggagacanga	gaaaganctg	ggacccanat	ggggctgaag	660
aaaggatcaj	aatccgggat	cgggcaatgc	tggctctcaa	aatcaactct	caacaaantc	720
attaaaaaga	ctggagggaa	aaacaagagt	tccaaancct	ggtgaannaa	gncataaaaa	780
aagaagggtg	tcccaaaaaa	gnctccccc	tcaanccaac	cctncaggga	aaa	833

&lt;210&gt; 222

&lt;211&gt; 745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 222

ggattgatgg	tccagttggt	tatttagaaa	cctgattggt	caagaacatg	gtgggtgctt	60
cacacctttt	tcactgggat	tgtgctggag	gtgataggca	gcattctacc	atttcctcag	120
caacagaggt	gaaggctcct	caactcagaa	gcacaaattg	taggggacag	ggtgggcagg	180
gaaagggaga	aggaaatccc	aaggcaattc	aatagaagag	ggtaaaacga	ctccaaacat	240
cactaagggc	aggtgggggc	ctgcttgctc	agtgcctgct	aagtgtcctg	ccctccttgc	300
tctctctacc	cacctccact	caaaagatcc	tactgaatct	ccaggtaggc	agcaggggat	360
atcctatcat	taggggacaa	taacaggaaa	agccacagag	gagagggaaga	ggattgagtg	420
agagttcagg	agagcaaata	tcacaggccc	ggtgaggtct	caaggtggct	gccagcaggg	480
gcagcaagca	ttcaccaggg	gccccacac	ccacagagtt	gcccagagang	tccacaagct	540
cagctccact	ctgctgtttg	gccctcaagg	gttccagggt	ggggaagtgg	ggaagaggca	600
ngccagtcga	ggaagatctg	gattccgtga	angggtaag	tgtagtgttg	gtctcagaag	660
tcaaattntc	caagtccctt	gttgccctcc	ccacctggag	aagccccana	cccggnggta	720
attgctcncc	anctccttct	gccgc				745

&lt;210&gt; 223

&lt;211&gt; 747

&lt;212&gt; DNA



&lt;213&gt; Homo Sapiens

&lt;400&gt; 223

actacatcga	tgcggtggac	gagcccttgt	cctgctctta	tgtgctgacc	attcgcactc	60
ctcggctctg	ccccaccct	ctcctccggc	ccccaccag	tgctgcaccg	caggccatcc	120
tctgtcacc	ttccctacag	cctgaggagt	acatggccta	cgttcagagg	caagccgact	180
caaagcagta	tggagataaa	atcatagagg	agctgcaaga	tctaggcccc	caagtgtgga	240
gtgagaccaa	gtctgggggtg	gcaccccaaa	agatggcagg	tgcgagcccc	accaaggatg	300
acagtaagga	ctcagatttc	tggaagatgc	ttaatgagcc	agaggaccag	gccccaggag	360
gggaggagggt	gccggctgag	gagcaggacc	caagccctga	ggcagcagat	tcagcttctg	420
gtgctcccaa	tgattttcag	aacaacgtgc	aggtcaaagt	cattcgaagc	cctgcggtat	480
tgattcgatt	catagaggag	ctgaaagggtg	gaacaaaaaa	ggggaagcca	aatataggcc	540
aagagcagcc	tgtggatgat	gctgcagaag	tcctcagag	ggaaccagag	aangaaaggg	600
gtgatccaga	acggcagaga	gagatgggaa	ngaagangan	gatgaggatg	aggatgaggg	660
atgaaagann	aaggatgaaa	cgggcaagtt	actgggggaan	aattttgana	aagggaactg	720
ggaaagggat	tcctggcttt	ccgttca				747

&lt;210&gt; 224

&lt;211&gt; 618

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 224

gatggtccag	ttgtttat	agaaacctga	ttgttcaaga	acatggtggg	tgcttcacac	60
ctttttcgct	gggattgtgc	tggaggatgat	aggcagcatt	ctaccatttc	ctcagcaaca	120
gagggtgaag	ctcctcaact	cagaagcaca	aattgtaggg	gacaggggtg	gcagggaaag	180
ggagaaggaa	atcccaaggc	aattcaatag	aagagggtaa	aacgactcca	aacatcacta	240
agggcagggtg	ggggcctgct	tgctcagtgc	ctgctaagt	tcctgccttc	cttgcctctt	300
ctaccacact	ccactcaaaa	gatcctactg	aatctccagg	tangcancan	ggaatatcct	360
atcattaggg	gacaatanca	ggaaaagcca	cagaggagag	gaagaggatt	gagtganaag	420
ttcangacag	caaattatca	caggcccgtg	gagggtctca	ngtgngctgc	caacaagggg	480
caancagcat	tcaccangg	gccccacacc	cacnnagtt	gccccagagg	tccacancct	540
ancctccan	ctgcngttt	ggccctcaag	gggttccaan	gttcngnaaa	gtgggggagg	600
aaggcancct	antcccag					618

&lt;210&gt; 225

&lt;211&gt; 765

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 225

caaacatcag	agactgcatg	ctggagagaa	acttgaagaa	tgtgagaaaa	ccttcagcaa	60
ggatgaggag	cttagaaaa	agcagagaa	tcaccaggaa	aagaaagttt	attggtgtaa	120
tcagtgtagt	aggaccttcc	agggcagctc	agatctcctc	agacatcagg	taactcatac	180
aagagagaaa	ccatatgaat	gtaaaagaat	tgggaaaact	caatcagagc	tcagaccttc	240
tgagacatca	tagaattcac	agtggagaaa	aaccttacgt	atgcaataaa	tgtgggggat	300
cttttagggag	cagctcagat	cttattaaac	accatcgtgt	tcatactgga	gagaaacctc	360
atgaatgtag	tgaatgtggg	aaagtcttta	gccagaggtc	ccaccttgct	acacaccaga	420
aaatccacac	tggagagaa	ccctatcagt	gcactgaatg	tgaaaaagcc	ttcaggcgcc	480
gttcactcct	tattcaacgt	cggagaatc	atagtgtgta	gaaaccctat	gaatgtaagg	540
aatgtgggaa	actcttcctg	tggcacacag	ctttcctcaa	acatcagaga	ctgcatgctg	600
gagagaaact	tgaagaatgt	gagaaaacct	tcagcaagga	tganggagct	taggggagag	660
cagaaaattc	accanggaag	agaaagcctt	attggngta	atcagtgtgg	tanggctttc	720
caagggcagc	tcangacctc	atcgggccat	caggtaactc	aatac		765

<210> 226  
 <211> 791  
 <212> DNA  
 <213> Homo Sapiens

<400> 226  
 tggatccaaa gcacccctgg cactgttggt tatggcccac ctctgtctgg ggcccccatg 60  
 gtgtatgggc ctccaccccc caacttctcc atccccctca tccctatggg tgtgctgcat 120  
 tgcaacgtcc ctgaacacca taacttagag aatgaagttt cttagattaga agacataatg 180  
 cagcatttaa aatcaaagaa gcgggaagaa aggtggatga gagcatccaa gcggcagtcg 240  
 gagaaagaaa tggaagaact gcatcataat attgatgac ttttgcaaga gaagaaaagc 300  
 ttagagtgtg aagtagaaga attacataga actgtccaga aacgtcaaca gcaaaaggac 360  
 ttcattgatg gaaatgtaga gagtcttatg actgaactag aaatagaaaa atcactcaaa 420  
 catcatgaag atattgtaga tgaaattgag tgcattgaga agactcttct gaaacgtcgc 480  
 tcanagctca ggggaagctga ccgactcctg gcagaggctg agagtgaact ttcattgact 540  
 aaagaaaaga caaaaaatgc tggtgaaaag ttactgatg ccaagagaag tttattgcaa 600  
 actgagtcag atgctgaggg aattagaaag gagagctcan gaaactgctg ttaanctcgt 660  
 caaanctgat cagcagctaa gatcgctcca agctgatgca aaaggatttg gancancaca 720  
 angatcaagc aagaagaaat cttgaaaaga aattaacnaa aattntntna gcaaaagact 780  
 cagacttcaa a 791

<210> 227  
 <211> 687  
 <212> DNA  
 <213> Homo Sapiens

<400> 227  
 gattgttatc ttttattttc atatgaaaaa tagattttta gcaaaattca aaaataactc 60  
 gacactataa aanagaggg ccttaagtac attctttttg ttaataagat ttaccagttt 120  
 gtaggttcaa atatgcagtt aaaactactg ttttttttta aacatgttac gaagattaaa 180  
 aaaaaaaagg ctccagccaca tggttggtta aattcccata tgcaactatt cccatattga 240  
 ctatgtacaa gtgatttata aaaacattgg cattaatggt acaggcaaag taaactacag 300  
 tggagtttca naatctcagt tcaactgac ttgattaaaa aaaccatgtg acattccaat 360  
 tatgaagtca gtgaggtagt ggaggtgtt tccctgaata tatttacaca agacagtatt 420  
 cctcatctgg ctgaggcatt cttttccgga tttgttccaa gttganagtc ctctgtgagg 480  
 gaagactcca agctgagaca gactgggtga tgacgtgaa tctgcaaagg tgccctggtga 540  
 ccaattcccc ctaanagcat cctacttgtc tccncaaact gtgntaaagt gccctctgtc 600  
 ctgccgcttt cctttaatna aaacttctgg cttnngcttg ggcanacagt gtcggantt 660  
 gggccttgag tcnggcttcc cggggaa 687

<210> 228  
 <211> 810  
 <212> DNA  
 <213> Homo Sapiens

<400> 228  
 gtctgggcag cgccaggcga tggccctgct gctgggtgct ctgcctctt ggggcctggg 60  
 gcagtgagg ggcgggcggg cgtgggcgga gtggccgagg gcgccatgga gggggtgctg 120  
 tacaantgga ccaactatct gagcgggttg cagcctcgat gggtccttct ctgtggggga 180  
 atattgtcct attatgattc tctgaagat gcctggaaag gttgcaaagg gagcatacaa 240  
 atggcagtc gtgaaattca agttcattct gtagataata cagcatgga cctgataatc 300  
 cctggggaac agtatttcta cctgaaggcc agaagtgtg ctgaaagaca gcggtggctg 360  
 gtggccctgg gatcagccaa ggcttgctg actgacagta ggaccagaa ggagaaagag 420  
 tttgctgaaa aactgaaaa cttgaaaacc aaaaatgtcan aactaagact ctactgtgac 480  
 ctcttgttc ancaagtaga ttaaaacata agaagtgacc acaactggtg tgtccaattc 540

tgaggtaaag	gagtcctcca	ctctgggtgt	ttcgtangag	ggaattgatg	tgaggaaacttt	600
gctgaaatca	anctgntata	ctttttctga	aagaccttgg	taagaattca	tgcanatngc	660
aaattgcagc	cttnaanctc	ctgaagcctn	cttctaaccg	gcactccaac	canggaatna	720
anctnaagct	gggccaatgg	ctccaaagtt	ccaacnaaag	gttaaaan	atcccagctcaa	780
atttgggcng	caaacaaagg	gcaatccaac				810

<210> 229  
 <211> 552  
 <212> DNA  
 <213> Homo Sapiens

<400> 229						
gtaaaattgt	ttgagttcat	tgtagattct	ggatattagc	ccttttgtca	gatgagtaga	60
ttgcaaaaat	tttctcccat	tctgtaggtt	gcctgttcac	tctgatggta	gtttcccttg	120
ctgtgcggaa	gctctttagt	ttaattagat	cccatttgtc	aatttcgget	tttgttgcca	180
ttgctttcgg	tgtttttagac	atgaagtcct	tgcccatgcc	tatgtcctga	atggttttcc	240
taggttttct	tctagggttt	ttatggtttt	aggtctaaca	tttaagtctc	gaatccatct	300
tgaattaatt	tttgtataag	gtgtaaggaa	gggatccact	ttcagctttc	tacgtatggc	360
tagccagttt	tcccancacc	atattataaa	tagggaaatc	tttccccant	tectgttttt	420
gtcangtttg	tcaaagatca	natggctgta	natatgcanc	attatttccg	agggctctgt	480
tcngttccat	tggtctacat	ttccgttttg	gttcnctac	catgctgttt	tttgttacng	540
gtanaccttg	gt					552

<210> 230  
 <211> 842  
 <212> DNA  
 <213> Homo Sapiens

<400> 230						
ctcatcagtt	agaagaaaaa	gaaaatcaaa	ttaagagcat	gaaggctgat	attgaaagtc	60
ttgtaacaga	aaaagaagcc	ttacagaagg	aaggaggcaa	tcagcaacag	gctgcttctg	120
aaaaggagtc	ttgtataaca	cagttgaaga	aagagttatc	tgaaaacatc	aatgctgtca	180
cattgatgaa	agaagagctt	aaagaaaaaa	aagttgagat	tagcagtcct	agtaaacaac	240
taactgattt	gaatgttcag	cttcaaaaata	gcacagcct	atccgaaaaa	gaagcagcca	300
tttcatcact	aagaaagcag	tatgatgaag	aaaaatgtga	attgctggat	cagggtgcaag	360
atattatctt	taaagttgac	actctgagta	aagagaaaat	ttctgctctt	gagcaggtag	420
atgactggtc	caataaatcc	tcagaatgga	agaagaaaagc	acagtcaaga	tttacacagc	480
atcaaaacac	tggttaaagaa	ttgcagatcc	agcttgagtt	aaaatcaaa	gaagcttatg	540
aaaaggatga	gcagataaat	ttattgaagg	aagagcttga	tcagcaaaat	aaaagatttg	600
attgtttaaa	gggtgaaatg	gaagacgaca	agagcaagat	gggagaaaaa	ggagtcta	660
ttagaaacag	agttaaagtc	tcaaacagca	agaattatgg	gattagagga	ccatattanc	720
caagaaaact	atttggaaat	tagagtcctt	aaatngaaag	ttccttaaaa	aattacaatc	780
aacaaaaagg	atattggacc	acaaagnaat	tggtgcaaaa	aaccttcaac	aantttcaag	840
ga						842

<210> 231  
 <211> 781  
 <212> DNA  
 <213> Homo Sapiens

<400> 231						
atatagtaaa	taaactttat	ttatctgttt	ctcagagatg	acactgccaa	caatcacaga	60
tttgcataca	atacagttat	gtattggcta	ttcacaat	acagtagtgt	tttttctct	120
gaaaaatata	agtacaaaag	ctaagtaaac	aatgaggtac	tgccatttgg	gattttttac	180
atgtcttagc	ttaaagaact	ggtcttttagc	aaatattcaa	catatcaacc	tgaataaaat	240

agtcaattaa atgctctaatt ttatcagaaa aaatccacta agtttcacct caaaatgtat	300
tgcacaagtc tttttaaaaa atcacccctaa aaataaatag gaaaggtaag ccgttcttta	360
aaaagaatgg atgaaaggaa tattatgtaa gcccataaag cagggttaagt tatcaaaata	420
tcttttaaac aacataaaaac tcttcccaag agaaaactga agaaaaaact atcaccattt	480
ctccactgat aaaatctatt ttaaaggcag tctgcaactt atctgtgggc cagatttttc	540
ttgggtcttt tggetacatg aggggccctg aatgacaact tcattctcaa agagtagcaa	600
agtgtggaca agttttccaa gcagcangtc acccaatgtc actcttcctc aagatgaagg	660
atcgagacca tgacacatgt ttaactaagc acagaccgga tgggtttacc cagaagatac	720
cactggcaan ggtgaagtaa acatcaggcc gaggcaacct tccccntttc aaaaantttt	780
c	781

&lt;210&gt; 232

&lt;211&gt; 767

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 232

gttatatagt aaataaactt tatttatctg tttctcagag atgacactgc caacaatcac	60
agatttgcac acaatacagt tatgtattgg ctattcacaa tttacagtag tgttttttcc	120
tctgaaaaat ataagtacaa aagctaagta aacaatgagg tactgccatt tgggattttt	180
tacatgtctt agcttaaaga actggtcttt agcaaatatt caacagatca acctgaataa	240
aatagtcaat taaatgctct aatttatcag aaaaaatcca ctaagtttca cctcaaaatg	300
tattgcacaa gtctttttta aaaatcaccc taaaaataaa taggaaagggt aagccgttct	360
ttaaaaagaa tggatgaaag gaattattatg taagcccata aagcaggtta agttatcaaa	420
atatctttta aacaacataa aactcttccc aagagaaaaac tgaagaaaaa actatcacca	480
tttctccact gataaaatct attttanagg cagtctgcaa cttatctgtg ggccagattt	540
ttcttggctt tttggtacaa tgagggggccc tgaatgaaaa cttcattctc aaaggagtag	600
caagtgtggg acagttttcc aagcagcagt cacccaatgt cactcttctt caagatgaaa	660
gatcggagnc atgacacatg ttaacctaaag nacangactg gagggtttac ncangaagat	720
acactgcgaa ggtgaaagtt aaacatcaag ccgaggaacc tccccctt	767

&lt;210&gt; 233

&lt;211&gt; 879

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 233

gggagtttaa tacacagctg gcacaaaagg aacaagagct ggaaatgacc ataaaagaaa	60
ctatcaataa ggcccaggag gtggaggctg aacttttaga aagccatcaa gaagagacaa	120
atcagttact taataaaatt gctgagaaag atgatgatct aaaacgaaca gccaaaagat	180
atgaagaaat ccttgatgct cgtgaagaag aaatgactgc aaaagtaagg gacctgcaga	240
ctcaacttga ggagctgcag aagaaatacc agcaaaagct agagcaggag gagaaccctg	300
gcaatgataa tgtaacaatt atggagctac agacacagct agcacagaag acgactttta	360
tcagtgatcc gaaattgaaa gagcaagagt tcagagaaca gattcacaaat ttagaagacc	420
gtttgaagaa atatgaaaag aatgtatatg caacaactgt ggggacacct taaaagggtg	480
gcaatttgta ccatacggat gtctcactct ttggagaacc taccgaattt gagtatttgc	540
gaaaagtgtc ttttgagtat atgatgggtc gtgagactaa gaccatggca aaagttataa	600
ccaccgtact gaagttccct gatgatcaga ctcagaaaaa tttgggaaaa gagaagatct	660
cggctgatgt ttacttcacc tcgcagtggg atcctcngag taaaccatca gtcgtgccta	720
agttttacatg tgtcatgggt ccgattcttc atcctttgaa gaaagagtgg acattggggg	780
naccggctgc cttgggaaaa ctgtccanac nttgcnaacn ccttggggaa atggaagntt	840
ttccanttca agggccccct caangnttgc ccaaacagg	879

&lt;210&gt; 234

&lt;211&gt; 780

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 234

aaactttatt tatctgtttc tcagagatga cactgccaac aatcacagat ttgcatacaa	60
tacagttatg tattggnng gcacaattta cagtagtggt ttttctctg aaaaatataa	120
gtacaaaagc taagtaaaca atgaggtact gccatttggg attttttaca tgtcttagct	180
taaagaactg gtcttttagca aatattcaac agatcaacct gaataaaaata gtcaattaaa	240
tgtcttaatt tatcagaaaa aatccactaa gtttcacctc aaaatgtatt gcacaagtct	300
ttttaaaaaa tcaccctaaa aataaatagg aaaggtaagc cgttctttaa aaagaatgga	360
tgaagggaat attatgtaag cccataaagc aggttaagtt atcaaaatat cttttaaaca	420
acataaaact ctcccaaga gaaaactgaa gaaaaaacta tcaccatttc tccactgata	480
aaatctattt taaaggcagt ctgcaactta tctgtgggcc agatttttct tgggtctttg	540
gctacatgag gggccctgaa tgaaaacttc attctcaaag agtagcaagt gtggacaagt	600
tttccaagca gcagtcanc c aatgtcactc ttcttcaaga tgaaagatcg gagccatgac	660
acatgttaac taagcacaga cntgatgggt tactncagaa gattaccact gnaagggtga	720
aagttaaaca tcaagncgag catncntctc tttccaaaaa ttttcggng tccggattca	780

&lt;210&gt; 235

&lt;211&gt; 780

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 235

attctgaggg tatattaagt cagagtcagg ataaatcact tcggagaata gcagaattaa	60
gagaggagct ccaaatggac cagcaggcaa agaaacatct gcaagaggag tttgatgcat	120
ctttagagga gaaagatcag tatatcagtg ttctccaaac tcaggtttct ctactgaaac	180
aacgattacg aaatggcccg atgaatgttg atgtactgaa accacttcct cagctggaac	240
cacaggctga agtcttcact aaagaagaga atccagaaag tgatggagag ccagtagtgg	300
aagatggaaac ttctgtaaaa acactggaaa cactccagca aagagtgaag cgtcaagaga	360
acctacttaa gcggtgtaag gaaacaattc agtcacataa ggaacaatgt acactattaa	420
ctagtgaaaa agaagctctg caagaacaac tggatgaaag acttcaagaa ctagaaaaga	480
taaaggacct tcatatggcc gagaagacta aacttatcac tcagttgcgt gatgcaaaga	540
acttaattga acagcttgaa caaggataag ggaatggtta tcgcagagac aaaacgtcag	600
atgcatgaaa ccctggaaat gaaagaagaa gaaattgtc aactccgtag tcgcatcaaa	660
cagatgacta cccaaggag aggaattacg ggaacaagan agaaaagtc gaaagaactg	720
cntttgaggg aacttgaaaa agccttgagt acagnccaa aanacagngg aagccaccgg	780

&lt;210&gt; 236

&lt;211&gt; 711

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 236

cttggttttt aaatttggtt tcatattcct cattcaaat atgaatactg tcctccttgg	60
ctgacaattt ctgtgtgagt atctcaattt ctttcttctg tccttctctc atttgtaaaa	120
tcatattttt cttttccacc aagatttgct ttgtctgttc ctgttctttg ttaccatctt	180
caagtttggg ctcatagact tgggttaaaag attttacttt ttgtccatt tcaactattt	240
gtttttcaag ttgtctgatt aagtcctgca cctggatttt gtgagcatct aactcagtac	300
aaacatcttt tttttgtgct tcaacttcag caacctgttt ggtaagaaga attctttctg	360
tttccaaatc caacaacttc tgctgcaatt gggccaactg tctctcatat gcttttgtct	420
gtcatgtgt ggcactctgg taagactgaa aaacgtccag cttagcagat gcctgctgga	480
gttccccttc agacctttta atatctgcct ccaaattttt tacatgagcc tgatgctctt	540
tcaaatgctt gtccctttcc ttcaagagaa gctcaagttg nttaanttga tcttttaaag	600
ccttctcaan tctccggga tanaaaacnt cgtgttcttt naatgagaac ggtcaacntg	660

ccggctgggt gataantttt ccgttcance anccttgggg ctccaaattc c

711

<210> 237  
 <211> 658  
 <212> DNA  
 <213> Homo Sapiens

<400> 237  
 atagtaaata aactttatct atctgtttct cagagatgac actgccaaaca atcacagatt 60  
 tgcatacaat acagttatgt attggctatt cacaatttac agtagtggtt tttcctctga 120  
 aaaatataag tacaaaagct aagtaaaca tgaggtactg ccatttgga ttttttacat 180  
 gtcttagctt aaagaactgg tcttttagcaa atattcaaca gatcaacctg aataaaatag 240  
 tcaattaaat gctctaattt atcagaaaaa atccactaag tttcacctca aaatgtattg 300  
 cacaagtctt tttaaaaaat caccctaaan ataaatagga aaggtaaagg gttcttttaa 360  
 aagaatggat gaaaggaata ttatgtaagc ccataagagc aggttaagtt atcaaaatat 420  
 cttttaaaca ncataaaaact cttcccanga gaaaactgaa gaaaaaacta tcaccatttc 480  
 tccactgata aaatctattt taaaggcagt ctgcantcta tctgtgggccc aagatttttc 540  
 ttggnctttt ggctacatga gggggccctg gaatgaaaaa cttcattccc aanggagttt 600  
 gcnaggtgtg ggacaggttt tccaaggcaa gcaagtnaag caaatngtca gctcttcc 658

<210> 238  
 <211> 678  
 <212> DNA  
 <213> Homo Sapiens

<400> 238  
 gttatatagt aaataaactt tatttatctg tttctcagag atgacactgc caacaatcac 60  
 agatttgcac acaatacagt tatgtattgg ctattcacaa tttacagtag tgttttttcc 120  
 tctgaaaaat ataagtacaa aagctaagta aacaatggg tactgccatt tgggattttt 180  
 tacatgtctt agcttaaaga actggtcttt agcaaatatt caacagatca acctgaataa 240  
 aatagtcaat taaatgctct aatttatcag aaaaaatcca ctaagtttca cctcaaaatg 300  
 tattgcacaa gtctttttta aaaatcacc taaaaataaa taggaaagg aaanccgttct 360  
 ttaaaaaagaa tggatgaaag gaattattatg taagcccata aagcaggtta agttatcaaa 420  
 atatctttta aacaacataa gaactcttcc caaggagaaa actgaannaa aaaactatca 480  
 ncatttcnnc actgataaaa tctantttta agggagtcn gcaacttanc tgtgggccag 540  
 atttttccgt ggggcttttg ggctacantn agggggccct gaatgaaaaa nttcaattcc 600  
 ncaaatgng tagcaaatg tgggncangt ttttccaaag cagncaantt cancccnana 660  
 tgtcactcct tccttcaa 678

<210> 239  
 <211> 1402  
 <212> DNA  
 <213> Homo Sapiens

<400> 239  
 gggagtttaa tacacagctg gcacaaaagg aacaagagct ggaaatgacc ataaaagaaa 60  
 ctatcaataa ggcccaggag gtggaggctg aacttttaga aagccatcaa gaagagacaa 120  
 atcagttact taaaaaaatt gctgagaaag atgatgatct aaaacgaaca gccaaaagat 180  
 atgaagaaat ccttgatgct cgtgaagaag aaatgactgc aaaagtaagg gacctgcaga 240  
 ctcaacttga ggagctgcag aagaaatacc agcaaaagct agagcaggag gagaacctg 300  
 gcaatgataa ggtaacaatt atggagctac agacacagct agcacagaag acgactttta 360  
 tcagtgattc gaaattgaaa gagcaagagt tcagagaaca gattcacaat ttagaagacc 420  
 gtttgaagaa atatgaaaag aatgtatatg caacaactgt ggggacacct tacaagggtg 480  
 gcaatttgta ccatacggat gtctcactct ttggagaacc taccgaattt gagtatttgc 540  
 gaaaagtgtc ttttgagtat atgatgggtc gtgagactaa gaccatggca aaagttataa 600

ccaccgtact	gaagttccct	gatgatcaga	ctcagaaaat	tttgaaaga	gaagatgctc	660
ggctgatgtt	tacttcacct	cgcagtggta	tcttctgagt	aaaccatcag	tctgtgctta	720
gtaacatgt	gtcatggctc	cgatcttcat	cttgaagaag	agtgacattg	ggtgactgct	780
gcttgaaaa	ctgtccacac	ttgctactct	ttgagaatga	agttttcatt	cagggccct	840
catgtagcca	aaagaccaag	aaaaatctgg	cccacagata	agttgcagac	tgcttttaa	900
atagatttta	tcagtggaga	aatggtgata	gttttttctt	cagttttctc	ttgggaagag	960
ttttatgttg	tttaaaagat	attttgataa	cttaacctgc	tttatgggct	tacataatat	1020
tcctttcatc	cattcttttt	aaagaacggc	ttacctttcc	tatttatttt	tagggtgatt	1080
ttttaaaaag	acttgtgcaa	tacattttga	ggtgaaactt	agtggatttt	ttctgataaa	1140
ttagagcatt	taattgacta	ttttattcag	ggtgatctgt	tgaatatttg	ctaaagacca	1200
gttctttaag	ctaagacatg	taaaaaatcc	caaattggcag	tacctcattg	tttacttagc	1260
ttttgtactt	atatttttca	gaggaaaaaa	cactactgta	aattgtgaat	agccaataca	1320
taactgtatt	gtatgcaaat	ctgtgattgt	tggcagtgtc	atctctgaga	aacagataaa	1380
taaagtttat	ttactatata	ac				1402

&lt;210&gt; 240

&lt;211&gt; 760

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 240

gtgcagtttc	tcttatattc	ctcacatatg	tgctttcatt	catctttcgc	aagtggagaa	60
aaaataatgg	cttttggctc	tttggctttt	ttattatctt	aatatgtgta	tccacaatta	120
tggtatcaac	tcaatatgaa	aaactcaact	taattttgtg	catgattttc	ataccttcct	180
tcactttgct	ggggtatgtc	atgttattga	tccagctcga	ctttatgaga	aacttggaca	240
gtctggacaa	tagaataaat	gaagtcaata	aaaccattct	tttaacaacc	ttaataccat	300
accttcagag	tggtattttc	ctttttgtca	taagggtgtc	ggaaatgaag	tatggaaatg	360
aaataatgaa	taaagaccca	gttttcagaa	tctctccacg	gagtagagaa	actcatccca	420
atccggaaga	gcccgaagaa	gaagatgaag	atgttcaagc	tgaaagagtc	caagcagcaa	480
atgcactcac	tgctccaaac	ttggaggagg	aaccagtcac	aactgcaagc	tgtttacaca	540
aggaaatatta	tgagacaaag	aaaagttgct	tttcaacaag	aaagaagaaa	atagccatca	600
gaaatgtttc	cntttgtgtt	aaaaaagggt	aaagttttgg	ggattaccta	ggacacaatg	660
ggagctggta	aaagtacttc	cattaaaatg	ataacntggg	tgacaaaagc	caaactgcan	720
ggagtggtgg	gtgttacaaa	ggnagcagan	gcacnngtta			760

&lt;210&gt; 241

&lt;211&gt; 745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 241

aaaagtccan	caaagtttta	tttctaagaa	ataaacttgc	atataacccg	aacgtaacaa	60
cncnggtatt	acatcaatac	agctataaca	ttaatgcagc	aattatataa	cacaaaagtg	120
ctataatgac	atgggaaatg	ttcatgaact	gtgaggtgaa	aagatacaga	aatgactat	180
gcctacngat	actacctttg	aaaaaggatc	cataaaaaat	acattgaata	taagttggct	240
aaagaaaata	ttaactgctg	tactttctta	cagattangg	ctanccttct	ccatataact	300
tcaatatgta	ctaaaattca	catgcattta	ttttataatc	agaatgtcat	tataattaaa	360
tggtangctg	tgccattttc	tcagttttatc	anaccttctt	atagtcaatg	tcacattaaa	420
ttagaatccg	agtaataaan	gtttaaaaat	anctgataca	tttgaagttc	aggctaaaaa	480
cctcatatatt	ttatttghta	aatgtttctca	ntggttagctt	tattgataat	aaccgataac	540
caaccttaata	ttgtangatt	tttaaattat	ttttaagcac	aaantagacc	catgttgggg	600
atgaataaca	tgtcngattt	tgtnaatttt	ggcncacnac	ttttcccaaa	aatttccttg	660
tttccttcan	ccnaaatttt	taaaantgaa	aactgtatca	attatggaan	ggtttattaa	720
aangtttncc	tttggttaacc	ngaag				745

<210> 242  
 <211> 818  
 <212> DNA  
 <213> Homo Sapiens

<400> 242  
 gcaacgcg ggcgcccag gtctggaagg cgcagaaatg gagcaagagc cacaaaatgg 60  
 agaacctgct gaaattaaga tcatcagaga agcatataag aaggcctttt tatttgtaa 120  
 caaagggtctg aatacagatg aattaggtca gaaggaagaa gcaaagaact actataagca 180  
 aggaatagga cacctgctca gagggatcag ctttcatca aaagagtctg aacacacagg 240  
 tcctgggtgg gaatctgcta gacagatgca acagaaaatg aaagaaactc tacagaatgt 300  
 acgcaccagg ctggaaatc tagagaaggg tcttgccact tctctgcaga atgatcttca 360  
 ggaggtgccc aagttatc cagaatttcc acctaaagac atgtgtgaaa aattaccaga 420  
 gcctcagtct tttagttcag ctctcagca tgctgaagta aatggaaaca cctcaactcc 480  
 aagtgcagg gcaagttctg cacctgcttc tctgtcttta ccatcacaaa gttgtccagc 540  
 agaagctcct cctgcttata ctctcaagc tgctgaaggt cactacactg taccctatgg 600  
 aacagattct ggggagttt catcagttgg agaggagttt tatagggaat cattctcagc 660  
 caacggcctc ttnagaacct taagggtctg gattcangat gaaattgatt ttgataccaa 720  
 atgggagtagc anntttttt tgtaaatcct gcaangggga ngttatgcan ctctgtancc 780  
 ccgggggtacc ttcnaattgt gaagggtttt gggntaaa 818

<210> 243  
 <211> 799  
 <212> DNA  
 <213> Homo Sapiens

<400> 243  
 aatttcttga agtacttttt taatccaatt aagctgataa taatcacttc gaattttaat 60  
 acaatacaat catgttccca aatttccnag gtcataaca atacagtctc aatacaaaag 120  
 acgtaataat ctattttttat tcatttttaa tcaaagaaac cattccattt cctaacaaac 180  
 aggtaagtta caaaagtagt ccattttact tttcatcagt ctttccctgt tttgaacaag 240  
 tctttttgag aattcttagt tttagttttt gtttagctta cacactgaaa attttgagaa 300  
 gcatctaaaa aaatccacaa ttagtgcaaa aagaggggac aatactttaa gtcattcctt 360  
 ctataaaaaag aattaagggt actaaatgcc aatttttaag caaatatata gtttcctatt 420  
 tgccttctga aagacagcag atataaaaat agttcaatat taggtttaac aaggtttgaa 480  
 caacacatgt actatcagct ttattttacc tgcaaaaata ttttagctac acttgaaaa 540  
 aaaataaact tgagaatata acttcacatt tctaaggcca gatgcaagaa tacttaatct 600  
 tttcctttta aatagaagac atgccataaa atttatgaaa agttaatttg taggaatggn 660  
 atacatttaa aaaatacngg ttaaacnngg tgagggaatt ccacatttgg cctatttaac 720  
 aaaaatttta aaccaatttt caaaaggggc tttggggtaa aaagtngatt cccaagcaac 780  
 ntcaancant ttaaccttc 799

<210> 244  
 <211> 726  
 <212> DNA  
 <213> Homo Sapiens

<400> 244  
 gtgagttgag cgctgctgct ccgcggtgga gtcaccgcac cgctcccggg atcatggtgt 60  
 tctacttcac cagcagcagc gttaattcat ctgcctacac tatttacatg ggaaaagata 120  
 aatatgaaaa tgaagatctg atcaagcatg gctggcctga agatatctgg tttcatgtgg 180  
 acaaactctc ttcggctcat gtataccttc gattacataa gggagagaat atagaagaca 240  
 tcccaaagga agtgctgatg gactgtgccc acctgtgaa ggccaatagc attcaaggct 300  
 gcaagatgaa caacgttaat gtggtatata cgccgtgggc taacctgaag aaaacagctg 360  
 acatggatgt ggggcagata ggctttcaca ggcagaagga tgtaaaaatt gtgacagtgg 420



```

agaagaaagt aaatgagatc ctgaaccgat tagaaaagac caaagtcgag cggttcccag 480
acctancagc agagaaagaa tgcagagatc gtgaagagag gaatgagaaa aaagcccaaa 540
ttcaggaaat gaaaaagaga gaaanagaag aaatgaagaa gaanagggaa atggatgaac 600
ttangagcta ttcactacta atgaaagttt gaaaatatgt cttcanatca ggatggcaat 660
ggattcagat gaattcatgt taaaaggaga aaaggngaaa aaggaccttt gaaaaatttg 720
aatgtt 726

```

<210> 245  
 <211> 592  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 245
ccagattaaa aaaatgggtat tttattataa cttttaaaat tgcggaacat cagactgaat 60
atcatcagac acatacacia aaccactcat ctctaaagtc attttctata ccctctcaaa 120
atttggccag tgagttttgc ctcagggaat tttccagttc aaccccatac accaactatgg 180
aataaatgga aacactagcc ttttggtttt gcccanagtt ccaaagtgtc attacaggtg 240
gaatatctgc tgcaggaagt cattcttgct gctgtgggtg tgagtaaaat gcttagttcc 300
ttctaaaatc ataattgcaa tatggacttc tgcttcacgc tgcctcctaa ggcacaaatc 360
aggtaacctc catctcccaa atgatcaaca ggagcactcc atcctatttt accctcaatg 420
cnganaaatt acnctctggc ccanaagttg tcacataggt ggcttgggtt acttggggct 480
caggcaacaa ctgccacagg cccagcttg atgaanacca tcnatttctt taaaatatgt 540
tggnnactaa gatggaggcc tccggcncan aggaanacan nggacataaa ac 592

```

<210> 246  
 <211> 821  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 246
aggatgaaga gctggagagc gccgaggacg acgagcgcag ctgtcggggc cgcgagtcgg 60
acgaagacac tgaggatgct agtgaaactg acctggcaaa gcatgatgaa gaagactatg 120
tagaaatgaa ggaacagatg tatcaggaca aactggcttc tctcaagagg cagttgcaac 180
aactgcaaga aggtacatta caggaatatc agaagagaat gaaaaaacta gatcagcagt 240
acaaagagag gatacggaat gcagaactct tctccagct ggaaactgaa caagtggaa 300
gaaattacat taaagaaaag aaggcagcag tgaaagaatt tgaagacaag aaggttgagc 360
tgaaagagaa cctgattgct gagctagaag aaaagaagaa aatgattgaa aatgaaaagc 420
tgacaatgga actgactgga gattctatgg aggtgaaacc tatcatgacc agaaagttgc 480
ggaggcgacc aaatgatccc gtcccacatc cagacaagag gaggaacact gctccagccc 540
agctaaacta tttgttaaca ggatgaacag atcatggagg atctgagaac attaaataag 600
cttaagtcac ccaagagacc agcatctcca tctctctctg agcacttgcc tgcaacaccc 660
gccggaatct ccaagcccca gaggttcnaa agccccggat anaagaatgg caaacctgtt 720
actatgacaa aaagatggtt accacaagag ccaaggccat cctatcctgg angtcaaagg 780
gacaaaccan gaaactgaag cctgcctnat taagtttccg t 821

```

<210> 247  
 <211> 639  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 247
gttacacaaa gcatttatct ctctgagaag gccgagagcc acgagaattc atcatctcct 60
gctaggacct ctgccccaaag cttctgggca aatagtgaat tggacgcgac agggaaagta 120
gctacgtgat ccactaatca gattcaaaac atgaaatgc actggagagt gtatcccttc 180
ctgctcttct ccatggtaga gagacttaaa gataatcaat aaaaatagct gtcccttcaa 240

```

actcagagga	ggttttcaaa	aacaagtata	agcaaaaaat	aaagaaataa	aaggaaagta	300
aatcaaacc	cccaatacgc	ctgaaagtaa	aacagtctca	tgggtactga	tgtctggaan	360
aagttgaggc	agaaaagact	gacaaaagtg	gaangcatcc	cggccacaaa	agtgcccnna	420
aagaattcan	tgcaagtctc	tccatttcca	aggctgagta	actattccca	gntaagttaa	480
catttttcna	nttaaggana	nancgaanac	anntncaatnt	ctanatccca	ctccagaaat	540
anggtcaatg	agaangangc	actgtannna	aagtcaagna	gctggancnc	ccgggcggnt	600
tnaccaaga	gcccggcgct	nnaagcctgg	gcccaagct			639

&lt;210&gt; 248

&lt;211&gt; 846

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 248

aacaggatgt	caaaaattaa	actgcgcttt	ccatcacaa	agaggacgat	atgttgatgg	60
ccttttccta	cctccgagca	aaactgtgtt	gcccactgtg	cctgagtcac	cagaagagga	120
agtgaaggct	agccaacttt	cagttcagca	gaacaaattg	tctgtccagt	ccaatccttc	180
ccctcagctg	cggagcggtt	tgaaagtaga	aagttccgaa	aatgttccta	gccccacgca	240
tccaccagtt	gtaattaatg	ctgcagatga	tgatgaagat	gatgatgac	agttttctga	300
ggaaggtgat	gaaaccacaaa	cacctaccct	gcaaccaact	cctgaagttc	acaatggatt	360
acgagtgact	tctgtccgga	aacctgcagt	caatataaag	caaggtgaat	gtttgaattt	420
tggataaaaa	actcttgagg	aaattaagtc	aaagaaaatg	aaggaaaaat	ctaagaagca	480
aggtgagggg	tcttcaggag	tttccagtct	tttactccac	cctgagcccg	ttccaggtcc	540
tgaaaaagaa	aatgtcagga	ctgtggtag	gacagtaact	ctctccacca	aacaaggaga	600
agaacccttg	gttagattga	gtcttactga	gagactgggg	aaacgaaaat	tttcagcagg	660
cggtgacagt	gatectccat	taaagcgtag	cctggcacan	aggctaaggg	aagaaagttg	720
aagctccaga	aactaacant	gacaaaacac	caangaaagc	tcaagtttcc	aagtcacctt	780
aaaggggcga	attaggcagt	tcagccngga	ttcaagataa	tnagggatgc	aacaagatta	840
aaggtt						846

&lt;210&gt; 249

&lt;211&gt; 763

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 249

gactttccta	catcagtttt	atttaaaaca	caaacaagta	tttctctttc	tgtaagggca	60
aatggttcaa	ataatgcgga	acacgaaaca	ttgactaata	caagtgcctt	aaatatgaaa	120
caaaattatt	ttttaaaaaa	gcaaaagaat	aaagaatata	tacaaaaggg	acctggaatc	180
tgtaagctga	ttccaaaaat	gaaataagta	gaaaatccat	ggtgaaacct	gaacattcta	240
cctctgcttt	ggagaagggc	tatcatacaa	cattcagtca	gctgaagatg	gattggtaga	300
ggtgtgtcta	tacataaaact	tcagtcattt	ttgcttgtgc	agaatcatcc	caatcttccc	360
aagactgaat	gggcagtcct	gtggctttct	tctttttcca	tattcccaac	aaggctacgt	420
gaagttcaac	tcttgatgag	ccgcttacaa	cagcagttcc	ttaggagcca	acatgacagg	480
tgggtcagat	ttccctatga	gaaacaaaac	tggccaccta	cagcaaaaata	tcaaaatggg	540
taagtccttc	cttccctctc	ctcctgatta	tatacaacat	atctcctttc	aagactatta	600
tttccatcat	gccttattcc	ttcacaaatc	taaaccttga	ngtgatatga	angaaaccaa	660
catcaagaaa	agaaaactca	attcagaaat	gaanaaaacg	ggcaggtata	caatacaccc	720
cagagcatct	caatatcccc	tgggacagnt	acaattcagt	ggt		763

&lt;210&gt; 250

&lt;211&gt; 899

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 250  
 attcaagtca agagatgtga gaccatgaga gagaagcaca tgcagaaaca gcaggagagg 60  
 gaaaaatcag tcttgacacc tcttcgggga gatgtagcct cttgcaatac ccaagtggca 120  
 gagaaaccag tgctcactgc tgtgccagga atcacacggc acctgaccaa gcggcttccc 180  
 acaaagtcac cccagaaggt ggaggtagaa acctcaggga ttggagactc attattgaat 240  
 gtgaaatgtg cagcacagac cttggaaaaa aggggtaaag ctaaacccaa agtgaacgtg 300  
 aagccatctg tggttaaagt tgtgtcatcc cccaaattgg ccccaaaacg taaggcagtg 360  
 gagatgcacg ctgctgtcat tgccgctgtg aagccactca gctccagcag tgtcctacag 420  
 gaacccccag ccaaaaaggc agctgtggct gttgtccgc ttgtctctga ggacaaatca 480  
 gtcatctgtc ctgaagcaga aaatcctaga gacagtcttg tgtgcctcc aacctagtc 540  
 tcttcagatt cctcaccccc ggaggtgtct ggcccttcc catcccaat gagcatgaaa 600  
 actcgcgcac tcagctctgc ctcaacaagg aaagcccca ctctctgtgg aggatgattt 660  
 tgagaaacta atatgggaga tttcaaggag gcaaaattgg naactganat tgacctggat 720  
 tctgggaaaa gatgaagatg acccttcocg cttngngcct atcaannaaa ngattgntan 780  
 cctgaaaggg tggtaattga nggancctt naaaaaaaaa atccnccaaa aaaactnggg 840  
 ccttaanttc naccaatgg taacaatttn acctgagaat gnttaatttc ctttaggcc 899

<210> 251

<211> 755

<212> DNA

<213> Homo Sapiens

<400> 251  
 cctacatcag ttttatttaa aacactaaca agtatttctc tttctgtaag ggcaaatggg 60  
 tcaaataatg cggaaacacga aacattgana nagacaagt ctttaaataat gaaacaaaat 120  
 tatttttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag 180  
 gtgattccaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctg 240  
 ctttgagaaa gggctatcat acaacattca gtcagctgaa gatggattgg tagagggtg 300  
 tctatacata aacttcagtc atttttgctt gtgcagaatc atcccaatct tcccaagact 360  
 gaatgggcag tcctgtggct ttcttccttt tccatattcc caacaaggct acgtgaagtt 420  
 caactcttga tgagccgctt acaacagcag ttccttagga gccaacatga cagggtgggtc 480  
 agatttccct atgagaaaca aaactggcca cctacagcaa aatatcaaaa tgggtaagtc 540  
 ctctcttcc ctctctctg attatataca acatatctcc tttcaaagac tattatttcc 600  
 atcatgctta ntccttcaca aatctaaacc ttgagggtgat atgaaggaaa ccaacatcan 660  
 gaaaagaaaa ctcaattcag aaatgaagaa aacgggcang tatacaattc anccccagag 720  
 caacccaata atccctgggc aaaagttcaa ttcaa 755

<210> 252

<211> 753

<212> DNA

<213> Homo Sapiens

<400> 252  
 cctacatcag ttttatttaa aacactaaca agtatttctc tttctgtaag ggcaaatggg 60  
 tcaaataatg cggaaacacga aacattgact aatacaagt ctttaaataat gaaacaaaat 120  
 tatttttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag 180  
 gtgattccaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctg 240  
 ctttgagaaa gggctatcat acaacattca gtcagctgaa gatggattgg tagagggtg 300  
 tctatacata aacttcagtc atttttgctt gtgcagaatc atcccaatct tcccaagact 360  
 gaatgggcag tcctgtggct ttcttccttt tccatattcc caacaaggct acgtgaagtt 420  
 caactcttga tgagccgctt acaacagcag ttccttagga gccaacatga cagggtgggtc 480  
 agatttccct atgagaaaca aaactggcca cctacagcaa aatatcaaaa tgggtaagtc 540  
 ctctcttcc ctctctctg gattatatac aacatatctc ctttcaagac tattatttcc 600  
 atcatgcnta atccttcaca aatctaaac cttgagggtg atatgaaagg aaaccaacat 660  
 canagaaaag aaaactcaat tcaagaaaat taagaaaacc tggcaaggta tacaataata 720

ccccaggag catcccaaat aatccctggg aaa

753

<210> 253  
<211> 793  
<212> DNA  
<213> Homo Sapiens

<400> 253  
gactttccta catcagtttt atttaaaaca ctaacaagta tttcnccttc ngtaagggca 60  
aatggttcaa ataatgcgga acacgaaaca ttgactaata caagtgcctt aaatatgaaa 120  
caaaattatt ttttaaaaaa gcaaaagaat aaagaatata tacaaaaggg acctggaatc 180  
tgtaaggnga ttccaaaaac gaaataagta gaaaatccat ggtgaaacct gaanattcta 240  
cctctgcctt gganaagggc tatcatataa cattcagtcg gctgaanatg gattggtaaa 300  
gggtgtgtcta tacataaaact tcagtcattt ttgcttgtgc anaatcatcc caatcttccc 360  
aagactgaat gggcagtcct gtggctttct tccttttcca nattcccaac aaggctacgt 420  
gaagtccaac tcttgatgag ccgcttaca cagcagttcc ttaggagcca acatgacagg 480  
tgggtcagat ttccctatga gaaacaaaac tggccacct cagcaaaata tcaaatggg 540  
taagtccctt ctctctcttc cncctgatta tatacaanat atctcctttc aagactatta 600  
tttccatcat gcttattcct tcacanatct aaaccttgan gtgatatgaa nggnaaccaa 660  
catcangaaa agaaaactca attcagnaat gaangaaaac tgggaggtat ttaatanacc 720  
cccangnga atccaaatac cctggnaana gttcaattca antgtacngc naaagnccat 780  
aantaantat tgg 793

<210> 254  
<211> 625  
<212> DNA  
<213> Homo Sapiens

<400> 254  
cctacatcag ttttatttaa aacactaaca agtattttct tttctgtaag ggcaaatggg 60  
tcaaataatg cggaacacga aacattgact aatacaagtg ctttaaatat gaaacaaaat 120  
tattttttta aaaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag 180  
gtgattccaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctg 240  
ctttggagaa gggctatcat acaacattca gtcagctgaa gatggattgg tanagggtgtg 300  
tctatacata aacttcagtc atttttgctt gtgcagaatc atcccaatct tccaagact 360  
gaatgggcag tcctgtggct ttcttctttt tccatattcc caacaaggct acgtgaagtt 420  
caactcttga tgagccgctt acaacancaa gttccttang agccaacatg acaggtgggg 480  
tcangatttc cctatgagaa acaanactgg ccacctacag caaaaatatn aaaatgggg 540  
aagtccttcc ttctcttccc tcctgaatta tatncaacat ntctcctttt caagacnatt 600  
anttccatca gggcttaatc cttca 625

<210> 255  
<211> 907  
<212> DNA  
<213> Homo Sapiens

<400> 255  
gccaacagca ggggagaaac gtttctcttt cctctcagtt tgcgcacacc atggcgggccc 60  
ctgcccagca gactactcag cctggcgggc ggaagcgcaa aggcaaggct cagtatgtgc 120  
tggccaagcg cgctcggcgc tgcgacgctg gcggggcccg tcagctagag cccgggctac 180  
agggcacct catcacctgc aatatgaacg agcgcaagtg cgtggaggag gcctacagcc 240  
tcctcaacga atacggcgac gacatgtatg ggccagaaaa gtttacagac aaggatcagc 300  
agccctctgg aagtgaggga gaggatgatg atgcggaggg tgccttgaag aaagaagttg 360  
gtgacattaa ggcatttaca gagatgaggt taagaagatt ccagtcagtg gaaagtggag 420  
caaataacgt tgtcttcattc aggacacttg ggatagagcc tgagaaattg gtgcatcata 480

ttctccagga	tatgtacaaa	accaagaaaa	agaagactcg	agttattttg	cgaatgttac	540
ccatctcagg	cacatgcaag	gcttttttag	aagatatgaa	aaaatatgca	gaaacatttt	600
tggaaccctg	gtttaaagct	ccaaacaaag	ggacatttca	gatttgtgtac	aaaatctcga	660
nataacagtc	atgtnaatag	agaagaagtt	atcaagagaa	tttgcangga	atagtgtgca	720
acctcaattc	agnaaataaa	gtgggtntca	acaatccaca	agtacacaat	ngtaatanaa	780
atcatcaaan	ctgtcngttc	cctganngtt	tgttaaagga	ttacaagggt	ggtttannaa	840
aattcaatcn	ccaagaaggt	tggtnaanaa	ncccctaang	ggntccttca	naggcnttaa	900
ctcaaag						907

&lt;210&gt; 256

&lt;211&gt; 794

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 256

aataacgcaa	aatgacttat	ggagacaacc	actgatgggg	caccaggagt	gtagatacca	60
gacctctggt	tatcagatat	gatgtcacia	aanagagata	ttggcctttg	ttctggcagg	120
ctcctagcaa	tagaaaaagt	tttctttgaa	tttcatcatt	tacaaatctt	acaaatgcta	180
cagcatgaca	aatatttagt	aaacctgttg	actcatcatc	ctggatagag	aagctgctac	240
ttttcagtta	atgacacaaa	accttttttg	catcatatga	catatcatca	gtaaatcaac	300
ttattgagaa	taaagtctct	tcaactttgt	actgcatctt	gccccagcat	tttaattgta	360
ttagattctc	accaaccatg	catattttcc	tttcttgaga	taagttctgc	tactaaataa	420
tttgcttctt	aaaccttttg	actaaagggtg	atttctgaac	aaaagcctta	ctgtttttga	480
tagtccaaaa	gccatttgaa	aataatgaat	atcctttctt	gtcaagtggtg	tggtgatttat	540
tgttacaatt	gctaagtttt	gtaagttgca	tgtcacagac	aatgcacaat	gggacaagan	600
aaccttggtg	ctgagtcac	ataaatatcc	cttgagaagt	tancttttcc	ttaattaaga	660
caagaatttc	ctttggtgtc	cccttggttg	cactaagtat	acttgaaagt	ntnctccagn	720
angactggaa	gttcttcaat	caaccaant	ttttcaagaa	aatgtccngt	agtttcaang	780
gcctaaaaat	gggt					794

&lt;210&gt; 257

&lt;211&gt; 885

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 257

gacgccaa	gcagcggaga	aacgtttctc	tttctctca	gtttgcgcac	accatggcgg	60
cccctgcccc	gcagactact	cagcctggcg	gcgggaagcg	caaaggcaag	gctcagtatg	120
tgctggccaa	gcgcgtcgg	cgctgcgacg	ctggcgggcc	ccgtcagcta	gagcccgggc	180
tacaggcat	cctcatcacc	tgcaatatga	acgagcgcaa	gtgcgtggag	gaggcctaca	240
gcctcctcaa	cgaatacggc	gacgacatgt	atgggccaga	aaagtttaca	gacaaggatc	300
agcagccctc	tggaagtgtg	ggagaggatg	atgatgcgga	ggctgccttg	aagaaagaag	360
ttggtgacat	taaggcatct	acagagatga	ggtaagaag	attccagtca	gtggaaagtg	420
gagcaaataa	cgttgtcttc	atcaggacac	ttgggataga	gcctgagaaa	ttggtgcatc	480
atattctcca	ggatatgtac	aaaaccaaga	aaaagaagac	tcgagttatt	ttgcgaatgt	540
taccatctc	aggcacatgc	aaggcttttt	tagaagatat	gaaaaaatat	gcagaaacat	600
ttttggaacc	ctgggtttta	agctccaaac	aaaggacat	ttcagattgt	gtacaaatct	660
cgaataaca	gtcatgtgaa	tngagaaaga	agttatcaga	gaaattggca	aggaatagtt	720
gtgcaccctc	aattcagaaa	attaaagggtg	ggntctcaac	caatccacag	ttcacagntg	780
gtagttagaa	atcaatcaaa	acctgtcngt	ttgcccgaan	ttgnntgtta	aaagaattca	840
angttggttt	tanaanaaat	naaatcccca	aagaagggtg	gtgaa		885

&lt;210&gt; 258

&lt;211&gt; 798

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 258  
 aacatttttg cataaatggg tctttgatac aggtaaccag ttttgtaaca ttattcagaa 60  
 cttcactgta tcttcaagtt tttgatatca gnagcactgt ggagaaagca gtgtgctata 120  
 atgtcaacat caggatttct tttttttttt ttaataacgc aaaatgactt atggagacaa 180  
 ccactgatgg ggcaccagga gtgtagatac cagacctctg gttatcagat atgatgtcac 240  
 aacattatat attggccttt gttctggcag gtccttagca atagaaaaag ttttctttga 300  
 atttcatcat ttacaaatct tacaatgct acagcatgac aaatattagt gaaacctgtt 360  
 gactcatcat cctggataga gaagctgcta cttttcagtt aatgacacaa aacctttttt 420  
 gcacatcatg acatcatc aagtaaatac acttattgag aataaagtct cttcaacttt 480  
 gtactgcac ttgccccagc attttaatgt tattaagatt ctcaccaacc atgcataatt 540  
 tcctttcctg agataagttc tgctactaaa taatttgctt cttaaacttt ttgactaaa 600  
 gtgatttctg aacaaaagcc ttactgtttt tgataagtcc caaaaagcca ttgaaaaat 660  
 aatgaatgc ctttctgtc aagtggctgt gaatttaatg ttacaattgc caagttttgt 720  
 aagttgcatn gtcacangac aatgcacaat ggggacaagg agaaccttgg gcttgagtcc 780  
 acaataanta ccccttga 798

&lt;210&gt; 259

&lt;211&gt; 831

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 259  
 gccggcggtg gacgaggagc ccaacagcag cggagaaacg tttctctttc ctctcagttt 60  
 gcgcacacca tggcgggccc tgcccagcag actactcagc ctggcgggcg gaagcgcaaa 120  
 ggcaaggctc agtatgtgct ggccaagcgc gctcggcgct gcgacgctgg cgggcccgt 180  
 cagctagagc ccggtgtaca gggcatcctc atcacctgca atatgaacga gcgcaagtgc 240  
 gtggaggagg cctacagcct cctcaacgaa tacggcgagc acatgtatgg gccagaaaag 300  
 ttacagaca aggatcagca gccctctgga agtgaggag aggatgatga tgcggaggct 360  
 gccttgaaga aagaagttgg tgacattaa gcatctacag agatgagggt aagaagattc 420  
 cagtcagtgg aaagtggagc aaataacggt gtcttcatca ggacacttgg gatanagcct 480  
 gagaaattgg tgcacatat tctccaggat atgtacaaa ccaagaaaaa gaagactcga 540  
 gttattttgc gaatgttacc catctcaggc acatgcaang cttttttaga agatatgaaa 600  
 aaatgtgcan aaacattttt ggaancctgg tttaaagctc caaacaagg gacatttcag 660  
 attgtgttca aatctcgaaa ataacagtca tgttgaaatg aagaagaagt tatcagagaa 720  
 nttggcaagg aataatgntg caacctcaat tcagaaaata aaagtggatt tcaccaattc 780  
 cacagtncac aantggtagt agaaatcatc aaaagctntc tgtttgcccg a 831

&lt;210&gt; 260

&lt;211&gt; 772

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 260  
 aataacgcaa aatgacttat ggagacaacc actgatgggg caccaggagt gtagatacca 60  
 gacctctggt tatcagatat gatgtcacia cattatatat tggcctttgt tctggcaggc 120  
 tcctagcaat agaaaaagtt ttctttgaat ttcatcattt acaaatctta caaatgctac 180  
 agcatgacaa atattagtga aacctgttga ctcatcatcc tggatagaga agctgctact 240  
 tttcagttaa tgacacaaaa ccttttttgc atcatatgac atatcatcag taaatcaact 300  
 tattgagaat aaagtctctt caacttttga ctgcatcttg ccccgagcatt ttaatgttat 360  
 tagattctca ccaaccatgc atattttcct ttcttgagat aagttctgct actaaataat 420  
 ttgcttctta aaccttttga ctaaaagtga tttctgaaca aaagccttac tgtttttgat 480  
 agtccaaaag ccatttgaaa ataatgaata tcctttcttg tcaagtggcn gtgatttatt 540  
 gttacaattg ctagttttgt nagttgcatg tcacagacaa tgcacaatgg gacangagag 600

cctgggactg agtccacata ataccntga gaagtannct ttctttatta agacagaant	660
ttctttgtgtc ccttgttgca caagtntact gaagtntcnc aagaaggact ggangtcntc	720
ataancaacc ttttagaat gtccgtattc ctaaggccca aaaangggtc cc	772

<210> 261  
 <211> 753  
 <212> DNA  
 <213> Homo Sapiens

<400> 261	
agacgaggac gccaacagca ggggagaaac gtttctcttt cctctcagtt tgcgcacacc	60
atggcgggccc ctgcccagca gactactcag cctggcggcg ggaagcgcaa aggcaaggct	120
cagtattgtgc tggccaagcg cgctcggcgc tgcgacgctg gcgggccccg tcagctagag	180
cccggtctac agggcatcct catcacctgc aatatgaacg agcgcaagtg cgtggaggag	240
gcctacagcc tctcaacga atacggcgac gacatgtatg ggccagaaaa gtttacagac	300
aaggatcagc agccctctgg aagtgaggga gaggatgatg atgcgagggc tgccttgaag	360
aaagaagttg gtgacattaa ggcattctaca gagatgaggt taagaagatt ccagtcagtg	420
gaaagtggag caaataacgt tgtcttcac aggcacttg gtagagagcc tgagaaattg	480
gtgcatcata ttctccagga tatgtacaaa accaagaaaa agaagactcg agttattttg	540
cgaatgttac ccattctcagg cacatgcaag gcttttttag aaagatatga anaaatatgc	600
anaaaacatt tttggaaccc tgggttttaa gctccaaaca aaggacatt tcagaattgt	660
ggtacaaatc tcgaaatanc agtcatgtta antagagaan naagtttttc agaagaattt	720
ggcaaggaat nagtnttgca accctcaatt tca	753

<210> 262  
 <211> 659  
 <212> DNA  
 <213> Homo Sapiens

<400> 262	
aataacgcaa aatgacttat ggagacaacc actgatgggg caccaggagt gtagatacca	60
gacctctggt tatcagatat gatgtcacia cattatatat tggcctttgt tctggcaggc	120
tcctagcaat agaaaaagtt ttctttgaat ttcattcattt acaaatctta caaatgctac	180
agcatgacaa atattagtga aacctgttga ctcatcatcc tggatagaga agctgctact	240
tttcagttaa tgacacaaaa ccttttttgc atcatatgac atatcatcag taaatcaact	300
tattgagaat aaagtctctt caacttttga ctgcatcttg cccagcatt ttaatgttat	360
tagattctca ccangccatg catattttcc ttctctgaga taagtctctg tactaaagaa	420
tttgcttctt aaaccttttg actaaagggt atttctgaac aaaagcctta ctgtttttga	480
nnagtccana agccatttga aaaataatga atacccttc cttgtcaagt ggcngtgatt	540
tantgttaca atttgcnagg ttttgtaagt tgcattgtca cagnanaatg cacantnggg	600
acannagagan cntgggncng aagtccacat tatancctt tgagnaangt agctttccc	659

<210> 263  
 <211> 673  
 <212> DNA  
 <213> Homo Sapiens

<400> 263	
gagattttga tcacggtaac cgatcagaat gacaacaagc ccgaattcac ccaggaggtc	60
tttaaggggt ctgtcatgga aggtgctctt ccaggaaacct ctgtgatgga ggtcacagcc	120
acagacgcgg acgatgatgt gaacacctac aatgcgcgca tcgcttacac catcctcagc	180
caagatcctg agctccctga caaaaatatg ttcaccatta acaggaacac aggagtcac	240
agtgtggtca ccactgggct ggaccgagag agtttcccta cgtataccct ggtggttcaa	300
gctgctgacc ttcaagggtga ggggttaagc acaacagcaa cagctgtgat cacagtcact	360
gacaccaacg ataatcctcc gatcttcaat cccaccacgt acaagggtca ggtgcctgaa	420

aacgaggcta acgtcgtaat caccacactg aaagtgactg atgctgatgc ccccaatacc	480
ccagcgttgg gaggtgtat acaccatatt gaatgatgat ggtgggacaa tttgtcgtca	540
ccacaaatcc agtgaacaac gatggcattt tgaaaaacag caaagttgaa gtcaagtgtat	600
tttgctggtt cngaatacat tgttgcctcn gttgggagaa aggtntccaa cacatacccc	660
gggattngtt att	673

&lt;210&gt; 264

&lt;211&gt; 661

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 264

ccatccaaga taactttatt ccattttgca ttatttgata actatttctt tccccctccc	60
acctccaact gcatctccta ctctgaaatn cctcttgagc agccaagggt ggccagttct	120
gctcctcatt ttctgaaga anaatctcag cctgaaagaa tatagagcta ggtgacatat	180
gggtggccaa ccgcttctcc tcaagttcca anagagtggg caattagtga aattccatca	240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg	300
aaaaatgtag attaatagaga tctgtaactg tcttctctta actgtacacc cctcaggctg	360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca	420
ccataaaaacc accccgaggg tcagccatgc tgccagcact caagaagcag cagggccacc	480
tgctggaaaa ctgggcacgg ctctgggtgc ctggccctgc ctgcctctc cagctccttg	540
gagccaggtc tacggcaggg aacatgatct tcttctccag cttctgtgga aggaacanga	600
aatttttcat gatgtcttcc agctcttcta nggccaactg ggcatgganc ttggccacgt	660
c	661

&lt;210&gt; 265

&lt;211&gt; 659

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 265

ccatccaana taactttatt ccattttgca ttatttgata actatttctt tccccctccc	60
acctccaact gcatctccta ctctgaaatg cctcttgagc agccaagggt ggccagttct	120
gctcctcatt ttctgaana anaatctcag cctgaaagaa tatanagcta ggtgacatat	180
gggtggccaa ccgcttctcc tcaagttcca anagagtggg caattagtga aattccatca	240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg	300
aaaaatgtag attaatagaga tctgtaactg tcttctctta actgtacacc cctcaggctg	360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca	420
ccataaaaacc accccgaggg tcagccatgc tgccagcact caaaaagcag cagggccacc	480
tgctggaana actgggcacg gctctgggtg cctggccctg cctgcctctt ccacgtcctt	540
gganccaggt ctacggnagg accatgatct tcttctccan cttctgtgga aggaacanga	600
antttttcat gatgtcttcc actcttctag ggccaactgg gcatggactt ggccacgtc	659

&lt;210&gt; 266

&lt;211&gt; 620

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 266

ccatccaaga taactttatt ccattttgca ttatttgata actatttctt tccccctccc	60
acctccaact gcatctccta tttnnaaatg cctcttgagc agccaagggt ggccagttct	120
gctcctcatt ttctgaana anaatctcag cctgaaagaa tatagagcta ggtgacatat	180
gggtggccaa ccgcttctcc tcaagttcca anagagtggg caattagtga aattccatca	240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg	300
aaaaatgtag attaatagaga tctgtaactg tcttctctta actgtacacc cctcaggctg	360



aacgcgggag	tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaaacc	accccgaggg	tcagccatgc	tgccagcact	caagaagcag	cagggccacc	480
tgctggaaga	cctgggcacg	gctctgggtg	cctggccctg	cctgcctcct	ccacgtcctt	540
ggagccaggt	ctacngcang	aacatgatct	tcttctccac	ttctgtggaa	ggaacaggaa	600
ntttttcatg	atgtcatcca					620

&lt;210&gt; 267

&lt;211&gt; 745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 267

ccccccagac	aggcctgcag	tcaaatgctc	caatcattcc	tcaaggagtc	aatgagccca	60
gcactactac	aagtcagaaa	tctggaagcg	taaccacaga	acagctccaa	gaggttcttt	120
tgctcagctta	tgaccctcaa	attccaacac	gggctgctgc	cctgcgtact	ctttcccaact	180
ggatagagca	gagagaagca	aaagcccttg	agatgcaaga	gaagcttctc	aagatattct	240
tggaaaactt	ggaacatgaa	gacacttttg	tatatctatc	tgcaattcag	ggggttgccc	300
tgctgtcaga	cgtctatcct	gagaaaatct	tgccggactt	gttggtctca	tatgacagca	360
gcaaaagacaa	gcacacacca	gagaccaaga	atgaaagtcg	gggaagtcct	tatgcgaatc	420
gtcagggcat	taggagacat	ggtctcaaag	taccgagaac	ctttgatcca	taccttctctg	480
aggggagtg	gagatcctga	tggtgctcac	agggccagca	gcttgggcaa	ccttggggag	540
ctgtgccaga	ggctggactt	tctgctgggc	tccgtggtcc	atgaggtaac	agcttgccctg	600
attgctgtgg	ccaaaaacat	tntntgaaag	ttcaagttcg	cannagctgg	ccaanacaat	660
gtggggttgt	gcctgcnnng	tttcggggga	actcaacca	agaaaaagct	tantgtaagg	720
gtggnttaan	ccnccggtcc	ttcaa				745

&lt;210&gt; 268

&lt;211&gt; 676

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 268

ccatccaaga	taacttttatt	ccatthttgca	ttatthtgata	actatthtct	tcccctcccc	60
acctccaact	gcattctocta	ctctgaaatg	cctcttgagc	agccaagggg	ggccagttct	120
gctcctcatt	ttcctgaana	anaatctcag	cctgaaagaa	tatagagcta	ggtgacatat	180
gggtggccaa	ccgcttctcc	tcaagttcca	ananagtggg	caattagtga	aattccatca	240
gtcatgttaa	aataactttt	caccaggtag	acatccttct	ttcaatgcta	gaggacagtg	300
aaaaatgtag	attaatgaga	tctgtaactg	tcttctctta	actgtacacc	cctcaggctg	360
aacgcgggag	tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaaacc	accccgaggg	tcagccatgc	tgccagcact	caagaagcag	cagggccacc	480
tgctggaana	cctgggcacg	gctctgggtg	cctggccctg	cctgcctcct	ccacgtcctt	540
gggagccagg	tctacggcag	ggaacatgat	cttcttctcc	agcttctgtg	gaagggaacag	600
gaagtttttc	atgatgtcat	ccanctcttc	taaggccaac	tgggcatgga	acttggccac	660
gtcatcgggc	tccaaa					760

&lt;210&gt; 269

&lt;211&gt; 737

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 269

aacaaagaca	aagaaggcaa	ggthttctac	agcatcactg	gccaaggagc	tgacacaccc	60
cctgttggtg	tctttattat	tgaaagagaa	acaggatggc	tgaagctctt	ctctcacgct	120
gtgtcatcca	acgggaatgc	agttgaggat	ccaatggaga	ttttgatcac	ggtaaccgat	180
cagaatgaca	acaagcccga	attcaccag	gaggtcttta	aggggtctgt	catggaagg	240

gctcttccag	gaacctctgt	gatggaggtc	acagccacag	acgaggacga	tgatgtgaac	300
acctacaatg	ccgccatgc	ttacaccatc	ctcagccaag	atcctgagct	ccctgacaaa	360
aatatgttca	ccattaacag	gaacacagga	gtcatcagtg	tggtcaccac	tggtctggac	420
cgagagagtt	tccctacgta	taccctgggtg	gttcaagctg	ctgaccttca	aggtgagggg	480
ttaagcacia	cagcaacagc	tgtgatcaca	gtcactgaca	ccaacgataa	tcctccgac	540
ttcaatccca	ccacgtacaa	gggtcangtg	cctganaaag	aaggctaacg	tcgttatcac	600
caacactgaa	aagtgactga	tgctgatgc	cccccaatta	nccanccgt	gggaagctgt	660
ntacaccata	tngaaatgat	gatgggtggg	cnaatttgn	cgttcaccaa	caaatnccan	720
gtggaacaac	caatggg					737

&lt;210&gt; 270

&lt;211&gt; 726

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 270

ccatccaaga	taacttttatt	ccattttgca	ttatttgata	actatttcct	tcccctcccc	60
acctccaact	gcattctccta	ctctgaaatg	cctcttgagc	agccaagggt	ggccagttct	120
gctcctcatt	ttcctgaana	anaatctcag	cctgaaagaa	tatanagcta	ggtgacatat	180
gggtggccaa	ccgcttctcc	tcaagttcca	ananagtggg	caattagtga	aattccatca	240
gtcatgttaa	aatatacttt	caccaggtan	acatccttct	ttcaatgcta	gaggacagtg	300
aaaaatgtag	attaatgaga	tctgtaactg	tcttctctta	actgtacacc	cctcaggctg	360
aacgcgggag	tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaaacc	accccagagg	tcngccatgc	tgccagcact	caanaagcag	cagggccacc	480
tgctggaana	cctgggcacg	gctctgggtg	cctggccctg	cctgcctcct	ccacgtcctt	540
ggagccaggt	ctacggcagg	aacatgatct	tcttctccac	ttctgtggaa	ggaacangaa	600
atttttcatg	atgtctccan	ctcttctagg	gccactgggc	atggancttg	ggcnctcat	660
cgggtcccaa	anacactact	gcttcancag	gtgggtanaa	atccttgaag	angggctcac	720
acctcc						726

&lt;210&gt; 271

&lt;211&gt; 814

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 271

ccatccaaga	taacttttatt	ccattttgca	ttatttgata	actatttcct	tcccctcccc	60
acctccaact	gcattctccta	ctctgaaatg	cctcttgagc	agccaagggt	ggccagttct	120
gctcctcatt	ttcctgaaga	agaatctcag	cctgaaagaa	tatagagcta	ggtgacatat	180
gggtggccaa	ccgcttctcc	tcaagttcca	agagagtggg	caattagtga	aattccatca	240
gtcatgttaa	aatatacttt	caccaggtag	acatccttct	ttcaatgcta	gaggacagtg	300
aaaaatgtag	attaatgaga	tctgtaactg	tcttctctta	actgtacacc	cctcaggctg	360
aacgcgggag	tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaaacc	accccagagg	tcagccatgc	tgccagcact	caagaggcag	cagggccacc	480
tgctggaaga	cctgggcacg	gctctgggtg	cctggccctg	cctgcctcct	ccacgtcctt	540
ggagccaggt	ctacggcagg	accatgatct	tcttctccag	cttctgtggg	agggaacagg	600
gaagtttttc	aatgatgtca	tccagctctt	cctanggccca	actgggcaag	ggagcttggg	660
caacgtcatc	ggggctccag	acaaaactac	gtgcttcanc	aanggtggta	aaanatecct	720
gaaggacggg	ggctcaacaa	cccaagtanc	ctttccnggg	ctgaatcccc	ngaagcaagc	780
aagnacaaac	cacatgtttt	gggaagctcc	ggcg			814

&lt;210&gt; 272

&lt;211&gt; 862

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 272  
gtacactgaa cagaaaagat ctggaaggga aaatagaaga gcagcaacaa accagtcatg 60  
aaagaccac tgatgtagct catagccacc ttgaacaaca gcagagccat gagacagccc 120  
cccagacagg cctgcagtca aatgctccaa tcattcctca aggagtcaat gagcccagca 180  
ctactacaag tcagaaatct ggaagcgtaa ccacagaaca gctccaagag gttcttttgt 240  
cagcttatga ccctcaaatt ccaacacggg ctgctgccct gcgtactctt tcccactgga 300  
tagagcagag agaagcaaaa gcccttgaga tgcaagagaa gcttctcaag atattcttgg 360  
aaaacttgga acatgaagac acttttgat atctatctgc aattcagggg gttgccctgc 420  
tgtcagacgt ctatcctgag aaaatcttgc cggacttgtt ggctcaatat gacagcagca 480  
aagacaagca cacaccagag accaagaatg aaagtcgggg aagtccttat gcgaatcgtc 540  
agggcattag ggagacatgg tctcaaagta ccgagaacct ttgattcata ccttcctgan 600  
gggagtgaga gattctggat ggtgctcaca agggcagcaa cttgggcaan cttgggggaa 660  
ctgggtgccag aggctggact ttngctggg gctccgtggg ccaatggagg gtacaanctt 720  
gcctgaatt gctgtgggccc aaaaacaaga tnggtgaaag tttaaagtta cgcaaaactg 780  
ccaatacaat gttgggttgt tgccnggctg gnnttcggg ggaatcaagc ccaggaaaag 840  
cctaccgga ggggccttaa ac 862

<210> 273

<211> 677

<212> DNA

<213> Homo Sapiens

<400> 273  
ccatccaaga taactttatt ccattttgca ttatttgata actatttccct tcccctcccc 60  
acctccaact gcatctccta ctctgaaatg cctcttgagc agccaagggt ggccagttct 120  
gctctcatt ttctgaaga agaattctcag cctgaaagaa tatagagcta ggtgacatat 180  
gggtggccaa ccgcttctcc tcaagttcca agagagtggg caattagtga aattccatca 240  
gtcatgttaa aatatacttt caccagggtan acatccttct ttcaatgcta gaggacagtg 300  
aaaaatgtag attaatgaga tctgtaactg tcttcnctta actgtacacc cctcaggctg 360  
aacgcggggag tgctgaacac atgccctcgg aagggaacct gaagacccaa gtgacctgca 420  
ccataaaacc accccgaggg tcagccatgc tgccaagcac tcaagaggca gcagggccac 480  
ctgctggaan acctgggac ggntctgggt gcctgggccc tgctgcctc ctccangtcc 540  
ttggggccaa gtctaaggga agggaccaat gatcttctc cccaaacttc tgtggagggg 600  
aaaaaaggaa ntttttcaag gnggtcatcc nangtcctc caaggggnca aaatgggggc 660  
antggaacct tgggcaa 677

<210> 274

<211> 863

<212> DNA

<213> Homo Sapiens

<400> 274  
gaaaacagca aagttgaagt caagtgattt tgctgttctg aagcagttgt tgctctgtt 60  
ggagaaggta tccaacacat accctgatcc ggtcatccaa gaactcgctg ttgatctccg 120  
catcaccatc tctacccatg gagcctttgc cactgaggcc gtcagcatgg ctgccc aaag 180  
tacactgaac agaaaagatc tggaaggga aatagaagag cagcaacaaa ccagtcatga 240  
aagaccact gatgtagctc atagccacct tgaacaacag cagagccatg agacagcccc 300  
ccagacaggc ctgcagtcaa atgctccaat cattcctcaa ggagtcaatg agcccagcac 360  
tactacaagt cagaaatctg gaagcgtaac cacagaacag ctccaagagg ttcttttgtc 420  
agcttatgac cctcaaatc caacacgggc tgctgccctg cgtactctt cccactggat 480  
agagcagaga gaagcaaaaag cccttgagat gcaagagaag cttctcaaga tattcttgga 540  
aaacttgga catgaagaca cttttgtata tctatctgca attcaggggg ttgccctgct 600  
gtcagacgtc tctctgaga aaatcttgcc ggacttgtt gctcaatatg acagcagcaa 660  
agacaagcac acaccaagag accaagaatg aaagtcgggg aagtccttat gccaatcgtc 720  
anggcattag ggagacatgg tctcaaagta accgagaacc tttgattcat accttctgta 780

aggggaatta gagattctga atgggtgctca cagggccaac aaccttggcn aaccttgggg 840  
aacctgtgcc anaaggctng gac 863

<210> 275  
<211> 821  
<212> DNA  
<213> Homo Sapiens

<400> 275  
ccatccaaga taactttatt ccattttgca ttatttgata actatttcct tcccccccc 60  
acctccaact gcattctcta ctctgaaatg cctcttgagc agccaagggg ggccagttct 120  
gctcctcatt ttcctgaaga agaattctcag cctgaaagaa tatagagcta ggtgacatat 180  
gggtggccaa ccgcttctcc tcaagttcca agagagtggg caattagtga aattccatca 240  
gtcatgttaa aatatacttt caccaggtag acatccttct ttcaatgcta gaggacagtg 300  
aaaaatgtag attaatgaga tctgtaactg tcttctctta actgtacacc cctcaggctg 360  
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca 420  
ccataaaacc accccgaggg tcagccatgc tgccagcact caagaggcag cagggccacc 480  
tgctggaaga cctgggcacg gctctgggtg cctggccctg cctgcctcct ccacgtcctt 540  
ggagccaggt ctacggcagg accatgatct tcttctccaa gcttctgtgg agggaaacagg 600  
aagtttttca tgatgtcatc caagctcttc tanggccaac tgggcatgga gcttgggcac 660  
gtcatcgggc tccagacaca ctacgtgctt cancaagggt gtaaaagatt cttganggac 720  
ggngctcanc acctcagtaa nctttctggc tgagtcctcc gaaagcaaca gcacaancca 780  
catgtntngg aaacctgctg ttacttngaa ctcaacaac c 821

<210> 276  
<211> 722  
<212> DNA  
<213> Homo Sapiens

<400> 276  
aacagctgtg atcacagtca ctgacaccaa cgataatcct ccgatcttca atccccaccac 60  
gtacaagggg caggtgcctg agaacgaggg taacgtcgta atcaccacac tgaaagtgcac 120  
tgatgtgat gcccccaata cccagcgtg ggaggtgta tacaccatat tgaatgatga 180  
tggtggacaa tttgtcgtca ccacaaatcc agtgaacaac gatggcattt tgaaaacagc 240  
aaagttgaag tcaagtgtat ttgctgttct gaagcagttg ttgcctctgt tggagaaggt 300  
atccaacaca tacctgatc cggtcatcca agaactcgt gttgatctcc gcatcaccat 360  
ctctacccat ggagcctttg ccaactgagc cgtcagcatg gctgcccata gtacactgaa 420  
cagaaaagat ctggaaggga aaatagaaga gcagcaaca accagtcag aaagaccac 480  
tgatgtagct catagccacc ttgaacaaca gcagagccat gaagacagcc cccagacag 540  
gcctgcagtc aaatgctcca atcattcttc aaggagtcaa tgagcccagc actactacaa 600  
gtcagaaatc tggaagcgtt accacagaac agctccaaga gggtcctttg tcagctttat 660  
gaacctcaaa ttccaacacg gggctggtgc ctgcgttact cnttccact gggntagaag 720  
ca 722

<210> 277  
<211> 805  
<212> DNA  
<213> Homo Sapiens

<400> 277  
ccatccaaga taactttatt ccattttgca ttatttgata actatttcct tcccccccc 60  
acctccaact gcattctcta ctctgaaatg cctcttgagc agccaagggg ggccagttct 120  
gctcctcatt ttcctgaaga agaattctcag cctgaaagaa tatagagcta ggtgacatat 180  
gggtggccaa ccgcttctcc tcaagttcca agagagtggg caattagtga aattccatca 240  
gtcatgttaa aatatacttt caccaggtag acatccttct ttcaatgcta gaggacagtg 300

WO 99/04265

aaaaatgtag	attaatgaga	tctgtaactg	tcttctctta	actgtacacc	cctcaggctg	360
aacgcgggag	tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaacc	accccgaggg	tcagccatgc	tgccagcact	caagaggcag	cagggccacc	480
tgctgggaag	acctgggcac	ggctctgggt	gcctgggccc	tgctgcctc	ctccacgtcc	540
ttggagccaa	ggtctacggc	aggaccatga	tcttctctc	cagcttctgt	ggagggaaaca	600
ngaagttttt	caagatgtca	tccaactcct	ccaagggcca	actggggcat	gggagccttg	660
gcacgtcatn	cgggctccag	acacactacg	gtgcttcaac	aagggnggta	nagattcttg	720
anggacgggg	ctcaaaacaat	gaacctcant	tacctttcng	gctgagtcce	cnaaagcaac	780
aagtacaaac	cacatgtttt	gggaa				805

&lt;210&gt; 278

&lt;211&gt; 1358

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 278

agaactcaga	gctgctcttc	ctctgtggcc	agttggggac	cagcatcatg	aagtggatgg	60
tggtggtctt	ggtctgcctc	cagctcttgg	aggcagcagt	ggtcaaagtg	ccctgaaga	120
aatttaagtc	tatccgtgag	accatgaagg	agaagggctt	gctgggggag	ttcctgagga	180
cccacaagta	tgatcctgct	tggaagtacc	gctttggtga	cctcagcgtg	acctacgagc	240
ccatggccta	catggatgct	gcctactttg	gtgagatcag	catcgggact	ccacccaga	300
acttctctgg	cctttttgac	accggctcct	ccaacttgtg	ggtgcctct	gtctactgcc	360
agagccaggc	ctgcaccagt	cactcccgt	tcaaccccag	cgagtcgtcc	acctactcca	420
ccaatgggca	aaccttctcc	ctgcagtatg	gcagtggcag	cctcaccggc	ttctttggct	480
atgacaccct	gactgtccag	agcatccaan	gtccccaacc	aggagtccg	cttgagttag	540
aatnagcctg	ggtaccaact	tcgtctaagc	gcagtttgat	ggcatcatgg	gcctggcctt	600
accctgctct	gtccgtggat	gaggccacca	cagtatgcag	ggcatgtgca	ggagggcgcc	660
ctnaaccagc	cccgntttca	gggtttacnt	cagcaaccag	cagggctccc	agcgggggag	720
cggttgtcct	ttggyggtgt	ggatagcagc	ntgtacacgg	ggcagatcta	ctgggcgcnt	780
gtcaccagg	aactctactg	gcagattggc	attgaagagt	tcctcatcgg	cggccaggcc	840
tcgggctgg	gttctgaggg	ttgccaggcc	atcgtggaca	caggcacctc	tctgtcact	900
gtgccccagc	agtacatgag	tgctcttctg	caggccacag	gggcccagga	ggatgagtat	960
ggacagtttc	tcgtgaactg	taacagcatt	cagaatctgc	ccagcttgac	cttcatcatc	1020
aatgggtgtg	agttccctct	gccaccttcc	tcctatatcc	tcagtaacaa	cggctactgc	1080
accgtgggag	tcgagccac	ctacctgtcc	tcccagaacg	gccagcccct	gtggatcctc	1140
ggggatgtct	tcctcaggtc	ctactattcc	gtctacgact	tgggcaacaa	cagagtaggc	1200
tttgccactg	ccgcctagac	ttgctgcctc	gacacgtggg	ctcccctctt	cctcttgacc	1260
ctgcaccctc	ctagggcatt	gtatctgtct	ttccactctg	gattcagcct	tctttttctg	1320
gactctggac	tttctcta	aataaatagt	tcttcttt			1358

&lt;210&gt; 279

&lt;211&gt; 702

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 279

gaagcaatga	atacgcaatt	agaactttca	gaacaactta	aatttcagaa	caactctgaa	60
gataatgtta	aaaaactaca	agaagagatt	gagaaaatta	ggccaggctt	tgaggagcaa	120
atthtatatc	tgcaaaagca	attagacgt	accactgatg	aaaagaagga	aacagttact	180
caactccaaa	atatcattga	ggctaattct	cagcattacc	aaaaaaat	taatagtttg	240
caggaaagagc	ttttacagtt	gaaagctata	caccaagaag	aggtgaaaga	gttgatgtgc	300
cagattgaag	catcagctaa	ggaacatgaa	gcagagataa	ataagttgaa	cgagctaaaa	360
gagaacttag	taaaacaatg	tgaggcaagt	gaaaagaaca	tccagaagaa	atatgaatgt	420
gagttagaaa	atttaaggaa	agccacctca	aatgcaaacc	aagacaatca	gatatgttct	480
attctcttgc	aagaaaatac	attttagtaa	caaagtagta	aatgaaaaag	tcaaacactt	540

agaagataacc ttataaaagaa cttgaatctc aacacagtat cttaaaaaga tgagggtaac 600  
 ttatatgaat aatccttaag ttataaactt gaaaatggga tgcctcaacc attttaaagg 660  
 gtngagggttt tttccangna accgggggaa gaccttaaaa gg 702

<210> 280  
 <211> 874  
 <212> DNA  
 <213> Homo Sapiens

<400> 280  
 aactcaaaac agtggttaagt tcctatgctg ttagtactgt atcttgtcca cacctcaaac 60  
 aacagtgaga tctctgagca catgggtctgt acctcaacca cttttctatc accaggggtct 120  
 agaatagttg ggcattttaa taaaatttgc taaatgaatg aaaaatccaa aataaatcat 180  
 gaagccattt ataaatcaca ccaatcttgc ttgggttaaa caatagaaag taacactttt 240  
 gaaagagaag gcaaacaggt gttagagggg caagaatgtg agctcgagga aaagacagct 300  
 acgaactgtg tttttaacaa ctcattatct ggctactata tttcccaatc tattctaaca 360  
 ctaagaagaa tctgtctaata taattgtgac aacatctgca aaacctatgt tacctatttt 420  
 ttcttccaac tcttttactg aagacagagg atcatttttt acagaagggtg attttgctaa 480  
 ggaatcctan attttacagg ggggaaaaaa aaacacnaaa caaaacaaaa accagaatca 540  
 gaattcattt tccataatga actggccatc ntgttaagca taanaaaatc actatcaaag 600  
 anaattccta cagaaaccaa tttggtcaca gaatttccct tgttanacca gaaaattaat 660  
 actgaactta ctatgcataat ggcatttact attaaaaaaa aaaaagtant aaccaaggcc 720  
 aaganaaaca acctgaaaca ttaaatacat ntttataagg aaaaantaaa tgaattttta 780  
 tcttaatttt aaanaaaac cnaaaatttt nncatacccc cccgctctta cttaaaaaant 840  
 gncttaccaa aataactaanc ctttcccaa aacc 874

<210> 281  
 <211> 730  
 <212> DNA  
 <213> Homo Sapiens

<400> 281  
 acaaaacagc agctggaaag agaaatgtag gtggcagacg agccaggcac gaggtttcag 60  
 attggaaggg accaagatga ggaccaaggt gtggctgcct gactaggaac gctgtgggct 120  
 ggcccaggct ctgcacacac atcctgggan aactgccata ggccctagaa ggagggatga 180  
 aaggcgtatg ggagggaana cagcgggtccc cggatcagca gcagcaccac catcctctga 240  
 tggccctctg gcagtcgcc agctcggaag cactcagggc tggagcctgg gctctaagca 300  
 tgggccccag gagccanaca ggaggagggc agcaggaang gctggcatgg aagggtgag 360  
 ttctattggg gtcccacgcg ggcaaggga ccaggactca tccctgcttg tcagccaatc 420  
 agcttcttca ggaagcctcc aactgatect catccttgat gccacaaaac ttgtccacca 480  
 cgtecccatc cttcatggcc agcacagtgg gcaccgctga cactcatac tcaatggcga 540  
 agtctgtgtg gtctcaata tccaccttgg ccataccac cttcccgtgc tgcttgacca 600  
 ccatcttctc taacctccgn cccangatct tcagggtcca caccactgtg cgtggaaatc 660  
 cacaaccact ggtgtctcct gtttgaacac tccgtcttga aantcngtcc ntctgnata 720  
 ttaaagggtg 730

<210> 282  
 <211> 699  
 <212> DNA  
 <213> Homo Sapiens

<400> 282  
 agaactcaga gctgctcttc ctctgtggcc agttggggac cagcatcatg aagtggatgg 60  
 tgggtgtctt ggtctgcctc cagctcttgg aggcagcagt ggtcaaagtg cccctgaaga 120  
 aatttaagtc tatccgtgag accatgaagg agaagggtt gctgggggag ttcctgagga 180

cccacaagta	tgatcctgct	tggaagtacc	gctttggtga	cctcagcgtg	acctacgagc	240
ccatggccta	catggatgct	gcctactttg	gtgagatcag	catcgggact	ccaccccaga	300
acttcctggt	cctttttgac	accggctcct	ccaacttggt	ggtgccctct	gtctactgcc	360
agagccaggc	ctgcaccagt	cactcccgt	tcaacccag	cgagtcgtcc	acctactcca	420
ccaatgggca	aacctttctc	ctgcagtatg	gcagtgccag	cctcaccggc	ttctttggct	480
atgacaccct	gactgtccag	agcatccaan	gtccccaacc	aggagttcgg	cttgagttag	540
aatnagcctg	ggtaccaact	tcgtctaagc	gcanttttga	tgggatcaag	ggcctgggcc	600
taacctggct	ctgtcccgtt	ggattaaggc	caccacaagc	tatntagggc	nattnggntc	660
aaggatgggt	gtcnctttat	nnagcccccg	tnctttcaa			699

&lt;210&gt; 283

&lt;211&gt; 759

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 283

gaaattgaga	actgatttaa	tactaaagtt	ctgaataaag	gtgtgcactt	tatgattgat	60
tctatctttt	tgcacaagtt	ggatactcca	gtttcccatc	ccaacatggt	gttcgcaatg	120
tgtgagaacg	tgatgaaaga	cgatatcccc	gtttacacac	aaattcaact	gattcacctg	180
ttctcgaata	aagcttctgt	ttggctgtcc	accttaatgc	tatgttataa	ttttccataa	240
tttctcggga	tattacacac	ggatgtaagc	atthttggtg	ttctgaccat	tgtccatttc	300
tacatgttat	tcgcttgta	ccctcaagtt	gatacaagtt	ctggcattgg	tactcaactg	360
atgaagctgg	agcatatact	gacaacggga	atgaagtaat	gtccccattg	tcaatagggtg	420
gagggggccc	acattttcct	gtagaatctt	tgcattgagg	tggttccgtc	cagtttccat	480
ttaaacacat	cacttcttca	tccccaacaa	tttcataagg	gtcctacat	tgataacgta	540
ctctctcacc	agatggatat	ttactcatct	gtctcgacac	tatataagca	ttttgtactg	600
tgggcggatt	ccacangang	tgtctctgca	tgttgggctt	cctgtccact	gctattaatg	660
catgttacat	tactggctcc	accattttgt	aatatgttgc	acaagtttta	gtccttgctc	720
accccttat	acacatcctt	ctctctccat	gggtttggc			759

&lt;210&gt; 284

&lt;211&gt; 764

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 284

ggaccgcgat	gacgcagact	ggagggaggt	gatgatgccc	tattcgacag	aactgatatt	60
ttatattgaa	atggatcctc	cagctcttcc	accaaagcca	cctaagccaa	tgacttcagc	120
agttccaaca	tggaatgaag	gacagttctg	tttctcttca	ggatgcagaa	tggtagtggg	180
gggatatttc	aagggaggag	gtaaatgaca	aattgcggga	tatgccagat	gggaccttct	240
tgggtccgaga	tgcctcaaca	aaaatgcagg	gagattatac	tttgactttg	cggaaggagg	300
gcaataataa	gttaataaag	atctatcacc	gggatggtaa	atatggcttt	tctgacccctc	360
tgacatttaa	ttccgtgggt	gagctcatta	accactatca	ccatgaatct	cttgctcagt	420
acaatcccaa	acttgatgtg	aagctgatgt	acccaagtgt	ccagatacca	acaggatcag	480
ttggtaaaa	aagataatat	tgatgcagta	ngtaaaaaac	tgcaagaata	ccactctcaa	540
gtatcaggag	aagagtaaag	gagtatgata	ngctgtatga	agaatatact	agaacatccc	600
aaggaaatac	agatgaagag	gactgcaata	gaaagctttt	aatgaaaaca	ttaaaatatt	660
tggaaagaca	ntgtcacaca	caaggaaacca	acattnccaa	agaatatatt	gagnngattt	720
cncaaaaana	ggggaaatga	aaagggggan	ttgaacgaaa	ttta		764

&lt;210&gt; 285

&lt;211&gt; 586

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 285  
gcattgcacc ttttctttac ccatacaaac aagttacaaa gggtttcaaac aacagntcat 60  
tcttttaggct aaggaaacac catacaagca ccaacttcat tttangattc aaagctcacc 120  
atccccacaa aaagaatgct attccncatc tcagagaaaac aggcaggaag gacanaaggg 180  
gttagttaca gtgatcaatt ttagcgtttg ctaaaacnca caaattcnag nctttttaag 240  
ttcaagtttt ggtacagaag tatacattca actatgagtg ccacgttttc ccatcaaaca 300  
ttggntctggc aacaaactgt tttgttggct tctgaacata atacttcttc anaggagggg 360  
gctggtgaaa tgctgaancc taaattatgt tggnaagaaa caaagtacct tcanttgaag 420  
gtttttttta acanctnngc ttaaattatt taaatgaaan cccaagcctc ccnatttncc 480  
tttggtngcc ttttncanaa aatcccattc natcacaaaa ccctaaaaag ccttcttcgt 540  
nggggggaaa aaananactg ccaaangcaa aaacaaaaac ncccaa 586

<210> 286

<211> 666

<212> DNA

<213> Homo Sapiens

<400> 286  
gcctggagtt cagtgggtgc agcctgcttg cgagctgagg ccagacaggg gggcgcttac 60  
ggacggaaaa gaaaagttga ttacaaacgg gaccatattt tgcttcgaaa tggaaccagc 120  
agttagcgag ccaatgagag accaagtcgc acggactcat ttgacagagg acactcccaa 180  
agtgaatgct gacatagaaa aggttaacca gaatcaggcc aagagatgca cagtgatcgg 240  
gggctctgga ttcttggggc agcacatggg ggagcagttg ctggcaagag gatatgctgt 300  
caatgtatth gatatccagc aagggtttga taatccccag gtgcggttct ttctgggtga 360  
cctctgcagc cgacaggatc tgtacccagc tctgaaaggt gtaaacacag ttttccactg 420  
tgcgtcacc ccaccatcca gtaacaacaa ggagctcttt tatagaagtg aattacattg 480  
gcaccaagaa tgtcattgaa acttgcaaag aggtcggggg tcagaaactc attttaacca 540  
gcagtgccat gtcactcttg agggcgctga tatcaagaat ggaactgaaa gaccttcctc 600  
nagccattga aaccaattga cctactacac aganaactaa agatcttaca ngagaaggca 660  
atttct 666

<210> 287

<211> 782

<212> DNA

<213> Homo Sapiens

<400> 287  
gacagagaac aaatcgggtat aatatgaagc tgcttgcctc aagaaatcca aatccagttc 60  
catgaaggaa gaaatgtctg tttttgccgc cctcatcgtc acggaaagag taggggtgcgc 120  
tctctgccta gcagaaggag tcacaggctc agagcaaact cattcaaagg atgttatttc 180  
atcaatccac aggggaagga gtgactggct gagcaacgtg tcgagagagc ccagcctcca 240  
gtgtccctca cttgaccctc cgcagggtggc gaaagctctg cacggtcctc tccatagcat 300  
catccatggg cactagtggc tggtagccca tggccttttt ggctctctcg cagctgtagt 360  
agtggaatgt gccagccagt gcgacccgca tgggtgtgaa ggtgggctgc agctggatga 420  
caggactgat caccatcacc agcaggggata gcaggagggc caggtagtag gccaccagc 480  
aggggatgtg gtacttgggg gcctcataat tgaggcctgt caaggatgcg agacaggaat 540  
gtccaaaaag ggatgggctc atcattgggt atgtgaaatg ccttcccacc cagtgtcgag 600  
tctcngggan anctgctctg ccgccaagat tgtccatggg accaagggtc tcacaaagg 660  
gaaagtccac caagtctctc ccaatttcca atcacgaaac ttcaaccttg ccgttctctg 720  
ctgcctccat gaaggatggg ttacaaactg ccgggttccc tttggggccg aaaaattgcc 780  
aa 782

<210> 288

<211> 707

<212> DNA



&lt;213&gt; Homo Sapiens

&lt;400&gt; 291

aaagaagaac	tatttattat	tagagaaagt	ccagagtcca	gaaaaagaag	gctgaatcca	60
gagtggaaag	acagatacaa	tgccctagga	gggtgcaggg	tcaagaggaa	gaggggagcc	120
cacgtgtcga	ggcagcaagt	ctaggcggca	gtggcaaaagc	ctactctggt	gttgcccaag	180
tcgtagacgg	aatagtagga	cctgaggaag	acatccccga	ggatccacag	gggctggccg	240
ttctgggagg	acaggtaggt	gggctcgact	cccacggtgc	agtagccgtt	gttactgagg	300
atataggagg	aaggtggcag	agggaaactcc	acaccattga	tgatgaaggt	caagctgggc	360
agattctgaa	tgctgttaca	gttcacgaga	aactgtccat	actcatcctc	ctgggcccct	420
gtggcctgca	gaagagcact	catgtactgc	tggggcacag	tgagcagaga	ggtgcctgtg	480
tccacgatgg	cctggcaacc	ctcagaacac	cagccggagg	cctggccgcc	gatgaggaaac	540
tcttcaatgc	caatctgcca	gtagagttcc	tgggtgacan	gcgcccagta	gatctgcccc	600
gtgtacangc	tgctatccac	acccccaaag	gacaaccgct	ccccgcctgg	gagccctgct	660
ggttgctgan	gtaaaccctg	aanacggggc	tggtnaggg	cgccctctg	cacatgccct	720
gcatactgtg	gtggcctcat	ccacggncna	aaccanggta	aggcaaggcc	catgatgcca	780
tcaaaactgcc	ataacaaatt	tgtacaaggc	tcaatccca			819

&lt;210&gt; 292

&lt;211&gt; 664

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 292

ctcgcgctcg	cgctgggtggc	ggctgcctgg	gtccgcgccc	aggaagagct	aaggagcaaa	60
tccaagatct	gtgccaatgt	gttttggtga	gccggccggg	aatgtgcagt	cacagagaaa	120
ggggaaccca	cctgtctctg	cattgagcaa	tgcaaacctc	acaagaggcc	tgtgtgtggc	180
agaaatggca	agacctacct	caaccactgt	gaactgcac	gagatgcctg	cctcactgga	240
tccaaaatcc	aggttgatta	cgatggacac	tgcaaaagaga	agaaatccgt	aagtccatct	300
gccagcccag	ttgtttgcta	tcagtccaac	cgatgatgagc	tccgacgtcg	catcatccaa	360
tggttggaan	ctgagatcat	tccagatggc	tggttctcta	aaggcagcaa	ctacagtga	420
atcctagaca	agtattttta	agaactttga	taatggtgat	tctcgcctgg	actccaagt	480
aattcctgaa	gtttgtggga	acangaatga	aactgccatc	aatattacaa	cgtttccagn	540
accaaggagg	aacaacaagt	ttgcctaang	ggactccggg	ngttgatgcc	tctcaatttg	600
aactggtctg	gatgaaaaat	gcctgattgg	gnaattnaag	cttcccaant	agtttcncca	660
aatg						664

&lt;210&gt; 293

&lt;211&gt; 719

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 293

cactttaatt	tctttattca	tcaatagtat	ccgaaaagga	agaatcagga	gttacaaaaa	60
caagttaa	aatgcaatana	agcctactaa	atacaaatac	aagttcacaa	acacatatgc	120
aacagaaact	tgtttanatt	gtttcttgaa	gtttgactac	ttaaaaacat	aggtgtaaag	180
gaaagacatt	cagactgggc	cacgtgggct	tgtagcagg	canaggaacc	ctgctttcca	240
aaaactgata	tagtccaaag	tcacggcatg	tggaatggt	tccatggaca	ctggatctta	300
acagatgcta	tagtgtttac	aaaactacac	acacagagaa	agcccaagga	agcctgcagg	360
ctaagcccta	tgcttttaga	gggtgaagg	aaccaaact	agtttaatcc	tggttggttg	420
ctccatgcaa	aactttatgg	aagactcccc	agactaggct	atttagcagc	ttccatgaat	480
ggtcctcaga	tcagtgtgatt	ctacggcata	nacgacagct	gccctattta	cacagaagct	540
gcagaactca	agaagaatgt	ggatttgctc	tgggganttc	aatgttgag	ggtanantaa	600
tcttgggatg	ataaccatgt	tctaaatgac	tagtgaanaa	acctgtgggt	tcttgctttt	660
aacaaattgg	tgtactcttg	cccctcccat	aatgtccaag	ggctgggtaa	aacctttga	719

<210> 294  
 <211> 762  
 <212> DNA  
 <213> Homo Sapiens

<400> 294  
 agctaaggag caaatccaag atctgtgccca atgtgttttg tggagccggc cgggaatgtg 60  
 cagtcacaga gaaaggggaa cccacctgtc tctgcattga gcaatgcaaa cctcacaaga 120  
 ggccctgtgtg tggcagtaat ggcaagacct acctcaacca ctgtgaactg catcgagatg 180  
 cctgcctcac tggatccaaa atccagggtg attacgatgg aactgcaaa gagaagaaat 240  
 ccgtaagtcc atctgccagc ccagttgttt gctatcagtc caaccgtgat gagctccgac 300  
 gtcgcatcat ccagtggctg gaagctgaga tcattccaga tggctggttc tctaaaggca 360  
 gcaactacag tgaaatccta gacaagtatt ttaagaactt tgataatggt gattctcggc 420  
 tggactccag tgaattcctg aagtttgtgg aacagaatga aactgccatc aatattacaa 480  
 cgtatccaga ccaggagaac aacaaagtgt cttaggggac tctgtgttga tgccctcatt 540  
 gaactgtctg gatgaaaatg ctgattggna actcagcttc caagagtctc tcaaagtggc 600  
 ctcaaaccga tctttcaacc ctctgagaa agaagtgtgc cctgngaggg attaaacgta 660  
 atgcagatgg agnctgagac cnaaggtgga ccngttnacc gcctgtgtcc ggtgcccggg 720  
 ggaaattggg tcnggtncag ccatgaacct gttacgggaa ag 762

<210> 295  
 <211> 708  
 <212> DNA  
 <213> Homo Sapiens

<400> 295  
 cactttaatt tctttattca tcaatagtat ccgaaaagga agaatcagga gttacaaaaa 60  
 caagttaaat gcaatataga agcctactaa atacaaatac aagttcacia acacatatgc 120  
 aacagaaact tgtttanatt gtttcttgaa gtttgactac ttaaaaacat aggtgtaaag 180  
 gaaagacatt cagactgggtc cacgtgggct tgtagcagg cagaggaacc ctgctttcca 240  
 aaaactgata tagtccagag tcacggcatg tgggaatggt tccatggaca ctggatctta 300  
 acagatgcta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg 360  
 ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg 420  
 ctccatgcaa aactttatgg aagactcccc agactaggct atttagcagc ttccatgaat 480  
 ggctctcaga tcatgtgatt ctacggcata gacgacagct gccctattta cacagaagct 540  
 gcagaactca agaggaatgt ggatttgctc ttgggagttc aatgttgagc ggtaaaagta 600  
 gtccctgatg ataaccatgt tccaaatgac taagtgaaga gacactgtgg gttcctgcct 660  
 tttacaaaaa tgggggtact cctgcccctc ctccccanaa atgtccaa 708

<210> 296  
 <211> 652  
 <212> DNA  
 <213> Homo Sapiens

<400> 296  
 cactttaatt tctttattca tcaatagtat ccgaaaagga agaatcagga gttacaaaaa 60  
 caagttaaat gcaatataga agcctactaa atacaaatac aagttcacia acacatatgc 120  
 aacagaaact tgtttanatt gtttcttgaa gtttgactac ttaaaaacat aggtgtaaag 180  
 gaaagacatt cagactgggtc cacgtgggct tgtagcagg cagaggaacc ctgctttcca 240  
 aaaactgata tagtccagag tcacggcatg tgggaatggt tccatggaca ctggatctta 300  
 acagatgcta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg 360  
 ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg 420  
 ctccatgcaa aactttatgg aagactcccc aagactaggc tatttagcag cttccatgaa 480  
 tggctctcag atcaagtgat tctacggnat anacgacaag ctgccctatt tacacagaag 540  
 ctgcangaac tcaagaggga atgtgggatt gccctgggg agttcaatgg ttgcangggg 600

taatttttta	ctttaacnnc	taatgttcnt	tttctgaac	nntaattaan	aatgttgaa	420
attttaaatg	tnaaanantc	caantttccg	tntgttaaca	ttacncctcc	aatgttcnta	480
atatatntnt	taaccntnc	caattatnga				510

&lt;210&gt; 300

&lt;211&gt; 625

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 300

attagatagc	cggagtgtaa	gtgaaatcaa	ttcagatgat	gaattgtcag	gcaagggata	60
tgcttttagtg	cctattatag	ttaattcttc	aactccaaag	tctaaaacag	ttgaatctgc	120
tgaaggaaaa	tctgaagaag	taaatagaac	attagttata	cccactgagg	aagcagaaat	180
ggaagaaagt	ggacgaagt	caactcctgt	taactgtgaa	cagcctgata	tcttggtttc	240
ttctacacca	ataaatgaag	gacagactgt	gtagacaag	gtggctganc	agtgtgaacc	300
tgctgaagt	cagccanaan	cactttctga	caaggaanat	gtttgcaata	cagttgaatt	360
tctgaatgaa	aaagcnggaa	aaaagggang	ctcagttatt	atctcttagt	aaggaaaaag	420
cacttctagg	aagaagcttt	ttgatacctg	aananatgaa	atgttcacag	tngaaaggaa	480
naanngcagt	ancatttccn	tccttgaaan	gattnngttt	actcaaagga	attngnnnaa	540
nccngtanta	gaaaagtttc	aaacctaagn	ccggnaaaag	aggaagagat	gcctggccta	600
aaaaaaggga	aatccacnga	ccatt				625

&lt;210&gt; 301

&lt;211&gt; 792

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 301

aaaaantaaa	ttatnttaaa	aactttatta	tttncnatnc	at'ttatagg	gtantaaaat	60
aatactnctn	caaaatcatt	taaatnttat	tgatgccatt	gcaaaatcat	tataaataaa	120
tttntccat	tatccaatca	catctaaata	acattgaata	tntacagggt	nctctggata	180
ggtaccaaaa	ggtaccacnt	tttatacaaa	cttaattgtg	aaanctgggt	gaaataaatt	240
tncaaatcaa	aatttttttt	aantttaaat	catncactct	ttaaatttca	aacagtgtca	300
gtgtgacnct	tacttttaaa	ggaaaaaaat	tagtttaaaa	tttaatancc	acanatttaa	360
taatttttta	ctttaacact	taatgtacat	tttcatganc	agtaattaaa	atatnttgaa	420
attttaaatn	tgaaaaatft	caaagtftca	gtatnttaac	attacncttc	aatgttctt	480
aatatatata	taaacactta	caaattataa	atacaactag	ttgtntntct	acaatacata	540
ntgaacacc	attcttcttc	tctagccatn	tttatntgan	gataaaagtaa	taaatctctg	600
tgctattcaa	gggaaaaaaa	atgaatgctt	taaaaaataa	atctttaaaa	aataattcca	660
aaaaataagt	tcaaataattg	cacaaaaata	atttaactgt	aaatattact	ncntagtgt	720
aacaatttta	aaaaaatttt	acactctaca	ntaaatccnc	ttctnattct	ttaaaaaaat	780
tatgggaaat	cc					792

&lt;210&gt; 302

&lt;211&gt; 738

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 302

aaagagtaaa	ttatgttaag	aactttatta	ttttcgattc	at'tttatagg	gtagtaaaat	60
aatacttctt	caaaatcatt	taaatgttat	tgatgccatt	gcaaaatcat	tataaataaa	120
ttttctccat	tatccaatca	catctagata	acattgaata	tgtacagggt	tcnctggata	180
ggtaccaaaa	ggtaccacat	tttatacaga	cttaattgtg	aaagctgggt	gaaataaatt	240
ttcagatcaa	aatttttttt	aagtttaaat	cattcactct	ttaaatttca	gacagtgtca	300
gtgtgactct	tacttttaaa	ggaaaaaaat	tagtttaaaa	tttaatagcc	acagatttaa	360

taatttttta	ctttaacact	taatgtacat	tttcatgagc	agtaattaag	atatgttgaa	420
attttaaatg	tgaaagattt	caaaggtttc	agtatgttaa	cattactctt	caaatgttct	480
taatataat	ataaacactt	acaaattata	gatacaacta	gttgatatatc	tacaatacat	540
atatgaacac	cattcttctt	cccnagcca	tatttatatg	agggataaag	taataaatct	600
ctggtgctat	tcaaggnaaa	aaaatggaat	gccttaaaaa	aataaaatcc	ttaaagaata	660
ggttcaaaaa	ataaagttca	aaatantngc	ccaaaaataa	attaacnngg	taatattaac	720
tacataaggg	taaaacaa					738

&lt;210&gt; 303

&lt;211&gt; 635

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 303

gaacggcga	gggtaacatc	ccgggctcgc	gggaggtgt	cggggtaatg	gccacacgct	60
gacagaacca	gccgagtga	aaaggggagc	gaagccgttc	ctctgcaccc	ttccccaggc	120
ctgaggcctt	cccgttggg	gctgccgcgc	ccactgccgg	ctgaggagg	gcgatgagtt	180
ggttcaacgc	ctcccagctc	tccagcttcg	ctaagcaggc	cctgtcccag	gcccagaagt	240
ctattgacag	ggttctggac	atccaggaag	aggagccgag	catctgggcc	gagaccattc	300
cgtatggaga	gccgggaata	agttcccctg	tcagtggagg	atgggatact	tcaacctggg	360
ggttgaaatc	aaacactgaa	cctcagagtc	caccaatagc	ctctcctaaa	gcaatcacia	420
agccagttcn	gaggactgtg	gtcgatgaat	ctgaaaattt	cttcagtgcc	tttctctcgc	480
caactgatgt	ccagaccatt	cagaagagtc	cagtgggtatc	aaaacctcca	ncataatcac	540
aacnaccang	nagaangaan	tgaaaancan	cttacatgaa	tccttgacac	ttggncaant	600
caagaaactt	cctgaaacaa	ctgaaatcac	aaagt			635

&lt;210&gt; 304

&lt;211&gt; 847

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 304

gagacggagt	ctttctctgt	cacccatgct	ggagtgcagt	ggcacaatct	tggctcattg	60
taacctccac	ctcccaggtt	caagcaatgc	tcctgcctca	gcctcccag	tagctaggat	120
tacaggcgca	caccaccacg	ccaggcta	ttttgtat	ttagtagaga	tggggtttca	180
ccaaactgct	ggccatgctg	gtcttgaact	cctgacatca	ggtgatatgc	ccgccttggc	240
ctcccaaagt	gctgggatta	caggcatgag	ccacagcacc	tggccgtaaa	tgagagt	300
tatgtgcaag	taaaggcagt	tcaagtaata	aatgcatcac	aatatttcac		360
aggtttaaaa	cacaacctgg	ttacctttt	gaataaaata	acatttggaa	gaaggcatag	420
ctacttttaa	aagctattct	atgctttcct	tgtgtttgaa	atttcaagaa	aaaataaaat	480
gataaatcac	aaaattaaaa	atgccaaatt	caagttaatt	cctataattc	ttccattttg	540
ttatgaatat	tctgtaatat	caaacattca	tttttaattg	gctaaaaata	tgggtttaca	600
aaatatgaac	aggtaatttt	taaaagagta	aattatgtta	aagaacttta	ataantttcg	660
attcatttta	tagggtaanta	aaataatact	tcttcaaaat	caattaaatg	ttattgaatg	720
ccatttgcaa	aatcattata	aataaatttt	cncaattatc	caatcacaat	tctagataac	780
attgaataag	tncaaggttt	ccccgggata	ngttccaaaa	nggtncacac	attttatnca	840
gacctaa						847

&lt;210&gt; 305

&lt;211&gt; 767

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 305

cccccttcgt	ctcagctgtg	cggaacggc	cgagggtaac	atccccggct	cgcgaggaggc	60
------------	------------	-----------	------------	------------	-------------	----

tgctcggggta	atggccacac	gctgacagaa	ccagccgagt	ggaaaagggg	agcgaagccg	120
ttcctctgca	cccttcccca	ggcctgaggc	cttcccgcctt	gggtgctgccg	ccgccactgc	180
cggctgagga	ggggcgatga	gttggttcaa	cgctcccag	ctctccagct	tcgctaagca	240
ggccctgtcc	caggcccaga	agtctattga	cagggttctg	gacatccagg	aagaggagcc	300
gagcatctgg	gccgagacca	ttccgtatgg	agagccggga	ataagttccc	ctgtcagtgg	360
aggatgggat	acttcaacct	gggggttgaa	atcaaact	gaacctcaga	gtccaccaat	420
agcctctcct	aaagcaatca	caaagccagt	tcggaggact	gtggtcgatg	aatctgaaaa	480
tttcttcagt	gcctttctct	cgccaactga	tgtccagacc	attcagaaga	gtccagtggg	540
atcaaaacct	ccaacaaaat	cacaacgacc	aagaaagaag	aagtgaaaag	caacttacat	600
gaatcccttg	cacattggcc	aatcaagaac	tcctgaaaca	actgaatcac	aagtaaaaag	660
actccctcct	tgtgtgtttc	aaggggaaaa	ctctgggcaa	caaggtactt	catcacctaa	720
aactgaaagg	naaacaacga	agaaaactgt	ttaatnaaag	aatccgg		767

&lt;210&gt; 306

&lt;211&gt; 1659

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 306

cccccttcgt	ctcagctgtg	cggaacggc	cgagggtaac	atcccgggct	cgcgaggaggc	60
tgctcggggta	atggccacac	gctgacagaa	ccagccgagt	ggaaaagggg	agcgaagccg	120
ttcctctgca	cccttcccca	ggcctgaggc	cttcccgcctt	gggtgctgccg	ccgccactgc	180
cggctgagga	ggggcgatga	gttggttcaa	cgctcccag	ctctccagct	tcgctaagca	240
ggccctgtcc	caggcccaga	agtctattga	cagggttctg	gacatccagg	aagaggagcc	300
gagcatctgg	gccgagacca	ttccgtatgg	agagccggga	ataagttccc	ctgtcagtgg	360
aggatgggat	acttcaacct	gggggttgaa	atcaaact	gaacctcaga	gtccaccaat	420
agcctctcct	aaagcaatca	caaagccagt	tcggaggact	gtggtcgatg	aatctgaaaa	480
tttcttcagt	gcctttctct	cgccaactga	tgtccagacc	attcagaaga	gtccagtggg	540
atcaaaacct	ccaacaaaat	cacaacgacc	aagaaagaag	aagtgaaaag	caacttacat	600
gaatcccttg	cacattggcc	aatcaagaac	tcctgaaaca	actgaatcac	aagtaaaaag	660
actccctcct	tgtgtgtttc	aaggggaaaa	ctctgggcaa	caaggtactt	catcacctaa	720
aactgaaagg	naaacaacga	agaaaactgt	ttaataaaga	atcgatgatg	aaggtgccaa	780
ctgtaagttt	gaaagtatct	gaaagtgtaa	ttgatgtgaa	aacaactatg	gaaagtatat	840
ctaatacgtc	tacgagctct	ctcacagcag	aaacaaagga	catagctttg	gaacctaaag	900
aacaaaaaca	tgaagacagg	cagagcaata	cacctttctc	tcctgttagt	accttttcat	960
caggtaacttc	taccaccagt	gatattgaag	ttttagatca	tgaaagtgtg	ataagtgaga	1020
gctcagcgag	ctcgagacaa	gagactacag	attcaaaatc	aagtcttcac	ttgatgcaga	1080
catcttttca	gctttctctc	gcatctgctt	gtcctgaata	taatcgttta	gatgatttcc	1140
aaaaactcac	tgagagtgtg	tgttcatctg	atgcttttga	aagaatagac	tcatttagtg	1200
tacagtcatt	agatagccgg	agtgtgaagt	aaatcaattc	agatgatgaa	ttgtcaggca	1260
agggatatgc	tttagtgctt	attatagtta	attcttcaac	tccaaagtct	aaaacagttg	1320
aatctgtctg	aggaaaaatc	gaagaagtaa	atgaaacatt	agttataccc	actgaggaag	1380
cagaaatgga	agaaagtgga	cgaagtgtgaa	ctcctgttaa	ctgtgaacag	cctgatatct	1440
tggtttcttc	tacaccaata	aatgaaggac	agactgtgtt	agacaagggtg	gctgancagt	1500
gtgaacctgc	tgaaagtcat	ccanaancac	tttctgacaa	ggaanatgtt	tgcaatacac	1560
ttgaatttct	gaatgaaaaa	gcnggaaaaa	agggangctc	agttattatc	tcttagtaag	1620
gaaaaagcac	ttctaggaag	aagctttttg	atacctgaa			1659

&lt;210&gt; 307

&lt;211&gt; 831

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 307

ctaagcattc	catattggaa	gaagagattt	ctacacatga	aaaaaatgcc	tttgttttagt	60
------------	------------	------------	------------	------------	-------------	----

```

aaatcacaca aaaatccagc agaaattgtg aaaatcctga aagacaattt ggccattttg 120
gaaaagcaag acaaaaagac agacaaggct tcagaagaag tgtctaaatc actgcaagca 180
atgaaagaaa ttctgtgtgg tacaaacgag aaagaacccc caacagaagc agtggctcag 240
ctagcacaaag aactctacag cagtggcctg ctagtgcacac tgatagctga cctgcagctg 300
atagactttg agggaaaaaa agatgtgacc cagatattta acaacatctt gagaagacag 360
ataggcactc ggagtcctac tgtggagtat attagtgtc atcctcatat cctgtttatg 420
ctcctcaaag gatatgaagc cccacagatt gccttacgtt gtgggattat gctgagagaa 480
tgtattcgac atgaaccact tgccaaaatc atcctctttt ctaatcaatt cagagatttc 540
ttaaagtacg tggagtgtgc aacatttgat attgcttcag atgcctttgc tactttcaag 600
ggatttacta accagacata aagtgttggg agcaagactt cttagaacaa aattacgaca 660
ctanttttga agactatgag aaattgcttc agtctgagaa attatgttac caagagacag 720
tccttaaagc ctgctaaggg aactgattct ggaccgtcan aactttgcca tcaangcaaa 780
agtttatcaa caagccnggg gaaaccggaa acncaaggag gaacctcctt c 831

```

&lt;210&gt; 308

&lt;211&gt; 833

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 308

```

ccattcaaat gtttatactc catctaccca gaacaattac agcagaaaaa ataggcacct 60
ccaaagtctt cccaagaatg atgactttct gaaatgacac actgtacaaa ctggacaaat 120
gagacgactg actgtgacag gggccgggga gctcttcaag gggccgtttt cttcaagtct 180
cggatctgtt taatcaagta gttcttctcg tcagcgaact gctcatcatc cgtcctttct 240
ttttggaagc tgctcagaaa ctcaatgagt ttgggctgat tttttaacag gatctccaca 300
ataggctgtg ttttgtgagg actggccaca aacaccttaa aaacatgaaa ggcttcaaac 360
tggatgttgg gacttttata ccgaaggagg ttcatcatga gtttcagggt ctcgggcttg 420
ctgatatact ttgtcatgat ggcaaagtgt tgacgggtcca ggatcagctc ccttagcagc 480
tttaaagact gtctcttagt aacataattc tcagactgaa gcaatttctc atagtcttca 540
aaaaatagtg cgtaattttg ttctaagaag tctgctacca acactttaag gtcngggttag 600
taaatccttg aaagtagcaa aggcactctg agcaatatca aatgttgaca actccacgtt 660
acttaaagaa atctctgaat tgattagaaa aagaggatga ntttgggcaa ntgggtcaag 720
tcgaatanat tcctctcaag cataaaccce caaacgttaa ggnaaacccg tgggggcttc 780
aaaancntt gagggagcat aaancangga tattagggat nagcacccaa ata 833

```

&lt;210&gt; 309

&lt;211&gt; 1320

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 309

```

gcataccac catccacgag gatgaggtgg ccaagaccca gaaggcagag ggaggtggcc 60
gcctgcaggc tctgcgttcc ctgtctggca ccccaaagtc catgacctcc ctatccccac 120
gttctctctc ctctccccc tccccacct gtteccctct catggctgac cccctcctgg 180
ctgggtgatg cttcctcaac tccttgaggt ttgaagaccc ggagctgagt gccactcttt 240
gtgaactgag ccttggtaac agcgcccagg aaagataacc gctggaggaa ccaggaacgg 300
agggcaagca gctgggcca gctgtgaata cggcccagg gtgtggcctg aaagtggcct 360
gtgtctcagc cgccgtatcg gacgagtcag tggctggaga cagtgggtgtg tacgaggctt 420
ccgtgcagag actgggtgct tcagaagctg ctgcatttga cagtgcagaa tcggaagcag 480
tgggtgcgac ccgaattcag attgccttga agtatgatga gaagaataag caatttgcaa 540
tattaatcat ccagctgagt aacctttctg ctctgttgca gcaacaagac cagaaagtga 600
atatcccgct ggctgtcctt ccttgcctct aaagcacaac ctgcctgttc cggacccggc 660
ctctggacgc ctcaagacac tctagtgttc aatgaggtgt tctgggtatc catgtcctat 720
ccaagccctt caccaagaag accttaagag tcgatgtctg taccaccgac aggagccatc 780
tgggaaaagt gcctgggagg cgcccaaatn agcctggcgg aggtctgccg gtctggggga 840

```

```

aaagtcgact cgcttggtac aactttctca gntacaaaat acttgaagaa acagagcagg      900
gagctcaagc cagtgaggagt catggccctt gcttcagggc ntgccagcac ggacgctgtg      960
tcttgctctg ttggaacaga cagcagtggg gttggagaag aggcaggagg gcaggagcag     1020
cacacagaca ctggaagaca gctgggtgagt gagcccgccc ttggggcccca ggagctgccc     1080
tgcttgacc taggcccagc aatgagatcc cccaatgccg gtgcaactaa gagaagggtt      1140
ccactgggaa ggctgagaac cctctcctc atgggttctc tacaggcaaa aaggcaatgt      1200
aacctagtac gatgggtccc agaattcctt tcgaatttgc catttcgttt cccatgaatc      1260
acctatgcta gttcacacct aatgttattc tttatcttga tatagtgaca tttattttgc      1320

```

&lt;210&gt; 310

&lt;211&gt; 1030

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 310

```

aacatttctg tgatcaacat tgcttactgc gtttctactg tcaacaaaat gagcccaaca      60
tgacaactca gaaaggacct gaaaacttac attatgatca gggttgtcag acatctcgaa     120
ccaaaatgac aggttcagca ccacccctt ctccaacacc taacaaagag atgaagaaca     180
aagcagttct ttgcaaacct ttaacaatga caaaagctac ttactgtaaa cctcacatgc     240
agaccaaatc ttgtcagaca gatgatactt ggaggacaga atatgttcca gtgcctatcc     300
ctgtgcctgt gtatatccca gttcctatgc acatgtacag tcagaatatt cctgttccta     360
ctacagttcc tgttctctgt ccagttcctg tttttctgcc tgctccattg gacagcagtg     420
agaagattcc tgcagcaatt gaggagctaa aaagcaagggt ttcttcagat gctcttgata     480
cagagttgct tacaatgacg gatatgatga gtgaagacga ggggaaaaca gagacaacca     540
acatcaacag tgtaattatt gaaacagata taattgggtc agaccttttg aagaactctg     600
acccagagac acagtccagc atgcctgatg taccatatga accaagattt ggatatcgaa     660
atagattttc ccagagctgc tgaggagctt gatatggaaa atgaattttt attaccacct     720
gtttttggcg aagaatatga ggaacagccc aagacctcga tctaaaaaaa aaggagacca     780
agagaaaangc tgtatcaagg ataccaagtc ccatgatgat aagtctgaca atttcagaat     840
gcagcnttcc tttcaaatta tacgtatggg cgtaaatgca tgggnaacac cgggtcaaaa     900
actaagnnac ttggatgaaa gatcntccgg gnaattagaa tgagttaaaa tccttccaaa     960
tccantnaag tttaaaagag ggtntaatcc cctcaaaacc anagctggng ccttaacaag    1020
ggggttaacc                                     1030

```

&lt;210&gt; 311

&lt;211&gt; 546

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 311

```

gtttctgttt tcagaagaat tgggaaaact tctgtgaaag aagaatgcag aaacaaagaa      60
atatgaagtc ttgggagtat actgattaaa aagcacacat tgggagtgat agtaagaaga     120
gctaaaataa aaagcacaga aggaaaaaat aattgatttg tacataagct aaattataat     180
tcctttaaaa ttgtttataa caagatggaa tacagaatga cgattagatt tataacgtgt     240
gtttatatga atatgttggt aacagtgaga tttctgatat ggtataacaa agtatatgat     300
tggaggacct gcaaaatgta tactcgggtt gtttttcttt ttaaaaatat tgtnaaacag     360
gcaagtggag cttaacagca ttatggttca ttacnggggt tgggntatat acctttttca     420
gcttctgttn tgagcaagtt gtgttttcaa tccccacttt caatgtctat gggaaggggc     480
cnttttgcfn tgttttgttt tgtctttaa ncntttttaa acnggggaca canatggang     540
ccggcc                                     546

```

&lt;210&gt; 312

&lt;211&gt; 518

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 312  
 aaaattatta ntntaaaagg ggaaataggt nggattnccn tnttnagggc aataattntg 60  
 gggaggaatg ggggtggggct naccctgna acccatnata aacctattct nctnaggggtg 120  
 ctgggaaana attgggggtct ggaataaaanc tncaaaggg tcncngctt cactaaaacc 180  
 ttggcaacta aggtcattt ttccaaaggg gtttctnang tennctcct ntntaatcnt 240  
 tttattatnc cagggtggct gttgctaang cttnggtggg aaancangaa ntttctgctn 300  
 ctntgctgc tggtgctgct gggcantnca agggaaaacc ccccgacaa actgggataa 360  
 ngtgacctgn ttgncacnt ctngggccct attnccntac ctgnccctgna aatncttccc 420  
 nctctgcccc ctttactnnt gccannctt tccccccgg ttaggataaa aattccctn 480  
 aacctccnac ctttggttan cgggggtccc ctnccccc 518

<210> 313  
 <211> 660  
 <212> DNA  
 <213> Homo Sapiens

<400> 313  
 gccaaagtgt gaatacggcc cagggggtgtg gcctgaaagt ggctgtgtgc tcagccgccc 60  
 tatcggacga gtcagtggct ggagacagt gtgtgtacga ggcttccgtg cagagactgg 120  
 gtgcttcaga agctgtgca ttgacagt acgaatcgga agcagtgggt gcgaccgaa 180  
 ttcagattgc cctgaagtat gatgagaaga ataagcaatt tgcaatatta atcatccagc 240  
 tgagtaacct ttctgctctg ttgcagcaac aagaccagaa agtgaatatc cgcgtggctg 300  
 tccttccctg ctctgaaagc acaacctgcc tgttccggac ccggcctctg gacgcctcaa 360  
 gacactctag tgttcaatga ggtgttctg gtatccatgt cctatccaag ccttcacca 420  
 agaagacctt aagagtcat gtctgtacca ccgacaggag ccactcggga aaagtgcctg 480  
 ggaggcgccc aaatnagcct ggcgagggtc tgccggctctg ggggaaaagt cgactcgtcn 540  
 gtacaacctt ctcagctaca aatacttgaa gaaacaagac aangggactc aagccantgg 600  
 gagtcatggg ccttggcctc angggctgcc aacaacgggc cccgtgttct ggccccgttt 660

<210> 314  
 <211> 516  
 <212> DNA  
 <213> Homo Sapiens

<400> 314  
 gaaagggcac tttattgatg gagataaaac tgaatggagt tccccacagc cctccccctca 60  
 ctcattgttag tggcttnact gggcatctga gaccagcgtg gcctgtcacc cacatanact 120  
 aggtgtgcta gccacccag cctatcacac tgcccgtcc acgttgggca gccacataaa 180  
 aacacgtcac agctcaanaa natecgtgga tgacacctg aatccccccc aatggtttct 240  
 gtgcattttt ttaatatgtt acaaaatag ttaactagga aaaattagct gtactgtgac 300  
 aagtgcggga cgtcctatta ggattaccgt cccccaggca ttacttctta ttgcagtaag 360  
 acctctaaaa ggtggagctg tncaaacc aaataatcta aacgatttta agaanagcag 420  
 caactcaata ctgctttagt tcatttaaat tttctttccc aaaaatacac tcctaaatat 480  
 acaaactata caatcttatt attttaatgc tggttt 516

<210> 315  
 <211> 677  
 <212> DNA  
 <213> Homo Sapiens

<400> 315  
 tcagaatggc agattcagga gagagtttgt gccagaatag cattgaagaa cttgatgggtg 60  
 tccttacatc catattcaaa catgagatac catattatga gttccagtct cttcaaaactg 120  
 aaatttggtc tcaaaacaaa tatactcatt tcaaagaact tccaactctt ctccactgtg 180  
 cagcaaaatt tggcttaaag aacctggcta ttcatttgct tcaatgttca ggagcaacct 240



gggcatctaa gatgaaaaat atggaggggtt cagaccccac acatattgct gaaaggcatg	300
gtcacaaaga actcaagaaa atcttcgaag acttttcaat ccaagaaatt gacataaata	360
atgagcaaga aaatgattat gaagaggata ttgcctcatt ttccacatat attccttcca	420
cacagaaccc agcatttcat catgaaagca ggaagacata cgggcaagag tgcaaatgga	480
gctgaggcaa atgaaatgga aggggaaggn aaacagaatg ggntcaggca tggagaccaa	540
acacagccca ctaagagggtt ggcagtgaga gttctgaaa accagtatga tgacttgtn	600
gtgttcaatc cctggngct gattcaagaa aaataattcc acaaggggtgc tattcntngt	660
ttttacaaga cntcctt	677

&lt;210&gt; 316

&lt;211&gt; 843

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 316

agcttttaaac attcaattta tttgtggcat ttgtacatga aaattatatg acgataacat	60
tgcttttctat tctaagctag taaattgttt ctaagaaata atagattgat aaaattgcaa	120
gtcttaatac aaaggtaggt tatgaaaatg tatattaatt tgagatatag aaaagttttc	180
aaataataat gttttcaggg ttatatgcaa atagacacta aataagacaa ggtttctgca	240
aacatgatgt aacaataatg actggaactc tgaatgtgag aaattcagaa aatgaaccag	300
ctacttaaaa agcaaaaatg tgctaagtaa atttgtatgt tcatggttat tctaaggaga	360
ggaggaataa tctgttgagg ttagtgccct caagcagacc ccataacttt gctacaccgc	420
atttaacttc tctgtgctgt tttcttttaa ttttcaaaat ggaaatttagc tgtttcattg	480
gtgaagtgca ttgtaaaatg agagaatgtt caaataatgc aattactcta tggattctg	540
ttttaatagt aatataacca tatgaagcag gtataatgag aataaatttt gccataaaca	600
aattctgaaa tctgaanttt gtttctgctg tcatagtatg aattcgcttt aaagananca	660
ggcaatccaa attcaacttg ctacactgaa aacaaaatgt ccgtanatcg tgagttcata	720
taataacctc cttaatgatc ttctgacaca naaaccaaat tcttttcaac ttgggggtcaa	780
caagaacctc ttgctgaatt ttcatataaa actatttctt gttggcagtt tctaccccc	840
gga	843

&lt;210&gt; 317

&lt;211&gt; 835

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 317

acaagacacg cctgcgtagt ggtagtgccc tctgcagtc ccagtctagt actgaggacc	60
cgaaggatga gcctgcggag ctaaaaccag attctgagga cttatcctcc cagtcctcag	120
cttcaaaggc atctcaggag gatgccaatg aaatcaagtc taaacgggat gaagaagaac	180
gagaacgaga aaggagggag aaggagaggg aacgagaaa agaacgggag aaggagaagg	240
agagagaacg agagaagcag aagctaaaag agtcagaaaa agagagagat tctgctaagg	300
ataaagagaa aggcaaacat gatgatggac ggaaaaagga agcagaaatt atcaaacaat	360
tgaagattga actcaagaag gcacaggaga gccaaaagga gatgaaacta ttgctggata	420
tgtaccgttc tgccccaaag gaacagagag acaaagttca gctgatggca gctgagaaga	480
agtctaaggc agagttggaa gatctaaggc aaagactcaa ggatctggaa gataaagaga	540
agaaaagaga caaagaaaat ggctgatgaa ggatgccttg aggaagatcc gggcagtggg	600
gggacaagat agaataccta cagaagaagc taagccatgg gcaagcagga agaagaagca	660
ctcctctctg aaatgggatg tcacaaggcc aagcctttga agacatgcag gagcaaaaat	720
atccgntttg attgcagcaa nttgccggga anaanggatg atgccaaatt ttcaaagccc	780
aatgtcaaaa gccgttttca agttccaaat ccagnttcat naagnttgcc ttaaa	835

&lt;210&gt; 318

&lt;211&gt; 582

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 318

caaaactgaat	cctgcttttaa	ttcaagcttg	nggagaacaa	agtcctacag	aaacattcca	60
nanaattttc	nggaaaagag	ggatcacaa	aacctgtaa	aaaggagact	ganagtaatt	120
canagctcac	caagttcncn	ccgtatcaaa	ttccanaat	acccacaaga	tttcttcacc	180
anctcantcc	tgactcaacc	tcttcaatct	ttanttcatt	agaagacaaa	gggtcanatt	240
attttaaatt	antcnantcc	caagaaattt	aaagacttga	agtagtagag	cattcaaaac	300
ttaaataact	ttaacaagaa	agccanctga	tcttaacaag	ttacnncngn	antaaatggg	360
aaatagactg	aatcanccta	nacataattt	cattagggnt	gcaaaccacc	cangggaaag	420
tagcacaaat	ataccanttt	gtaatccaca	ttcacaagaa	gtttgcnaca	caaatagaaga	480
aaactttgng	cccatagaca	acttattttt	taaaatatca	ctccccaaaa	gtagccatgt	540
ttccactttt	gggtcccctt	ccanatcaaa	aataccaact	tg		582

&lt;210&gt; 319

&lt;211&gt; 827

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 319

gaagccattc	gatgttcac	agattggcca	tttcagccat	accttgtgtt	tgatgttgga	60
gatgtttcag	aaagacggga	taatgactca	tatataaatg	ttcaagaaat	aaaactgggtg	120
atggaaataa	ttaagcttat	taaagacaaa	agaaaggatg	ttagttttcg	aaacattggc	180
ataataactc	attacaaggc	ccagaagacg	atgattcaga	aggattttgga	caaagagttc	240
gatagaaaag	gaccagcaga	agtagacact	gtggatgcat	tccagggctcg	gcagaaggat	300
tgtgttattg	ttactgtgtg	cagagcaaat	agcatccaag	gttcaattgg	attcctggca	360
agtttgcaga	gattgaatgt	caccatcaca	cgagccaagt	acagcctctt	catcctcgga	420
catttgagga	ccctgatgga	aaaccagcat	tggaatcagc	tgattcagga	tgctcagaag	480
cgtggtgcca	ttattaagac	ctgtgacaaa	aactatagac	atgacgcagt	gaagattctg	540
aaactcaagc	ctgtgctgca	gagaagtctc	actcancctc	ctaccatagc	cccaaagggg	600
tccaaacccc	aaggggtgnt	tgcccaagca	ncaagctaga	cagttggatt	ttgccaaaga	660
caatcctggg	tgccggcttc	tccaatacca	aaacaaccct	ccggactccc	aagggaaaat	720
tacncctaac	gggtttacct	caaagggacc	ctgaaaagac	ccncctgggt	caatgaccaa	780
cnttcanggg	nccccagaa	tggtgaaaa	agggatgggc	aatttag		827

&lt;210&gt; 320

&lt;211&gt; 598

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 320

aaattttaaa	aggattttgt	tatttgcctat	acaaatatac	atttcaactt	ttacaacatt	60
cactccagtc	tgacctcctt	gtctatagaa	gactaagaga	tcaacatttc	cagtctctga	120
cttcaaggac	attattacgg	atacacaatg	ccctctgaaa	gcttttgcaa	atgacagaaa	180
atactgaaga	tgaccagagg	ctcaggtggt	aaggatgcat	tttccatggt	ttccaacagc	240
acacaaactc	cttacaaaaa	acaagcttat	ctagatgggc	ccacgagctg	gtcatcttca	300
gtttacaata	tgctgtggct	gctggcccat	gtcactgggc	tttccataaa	aagctttctt	360
ttcttgggaa	ctgctgtcct	cctgtcccaa	gtgtcctctt	gtccaccta	gagttcctcc	420
tggtgtgatg	gggtctcgaa	ccacacttct	cctgtcctcc	ttcactgaaa	gccctggcct	480
ctctcctgtg	acagagctcc	tcttccgggt	catcacattt	gctctgacac	gtgggnagcc	540
tcggggaaact	gggcanctgg	gaggntccgt	ttttttttgg	gaaggtttgt	tggtgc	598

&lt;210&gt; 321

&lt;211&gt; 808

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 321

gcatcaccac	catccacgag	gatgaggtgg	ccaagaccca	gaaggcagag	ggaggtggcc	60
gcctgcaggc	tctgcgttcc	ctgtctggca	ccccaaagtc	catgacctcc	ctatccccac	120
gttctctctc	ctcctccccc	tccccaccct	gttcccctct	catggctgac	cccctcctgg	180
ctggtgatgc	cttccctcaac	tcttggagtc	ttgaagaccc	ggagctgagt	gccactcttt	240
gtgaactgag	ccttggtaac	agcgcccagg	aaagataacc	gctggaggaa	ccaggaacgg	300
agggcaagca	gctggggcaa	gctgtgaata	cggcccaggg	gtgtggcctg	aaagtggcct	360
gtgtctcagc	cgccgtatcg	gacgagtcag	tggctggaga	cagtgggtgtg	tacgaggctt	420
ccgtgcagag	actgggtgct	tcagaagctg	ctgcatttga	cagtgcagaa	tcggaagcag	480
tgggtgcgac	ccgaattcag	attgccctga	agtatgatga	gaagaataag	caatttgcag	540
tattaatcat	ccagctgagt	aacctttctg	ctctgttgca	ncaacaaaga	ccagaaagtg	600
aatatccgcg	tggctgtcct	tccttgcctc	gaaaagcaca	aactgcctgt	tccgggaccc	660
gggtctctga	cgccctcaac	actccaagtg	ttcaatgaag	gtgttctggg	tatccatggt	720
ccctatccaa	accnttaac	aagaaagacc	tttaanaag	tccaatgtcc	ngtnaccaac	780
cggacaaggg	agccaatctt	gggaaaaa				808

&lt;210&gt; 322

&lt;211&gt; 629

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 322

agcaaaataa	atgtcactat	atcaagataa	agaataacat	taggtgtgaa	ctagcatagg	60
tgattcatgg	gaaacgaaat	ggcaaattcg	aaaggaattc	tgggaacccat	cgtactaggc	120
tacattgcct	ttttgcctgt	agagaaccca	tgaggagagg	ggttctcagc	cttcccagtg	180
gaacccttct	cttagttgca	ctggcatttg	gggatctcat	tgctgggcct	aggtccaggc	240
agggcagctc	ctggggccca	agggcgggct	cactcaccag	ctgtcttcca	gtgtctgtgt	300
gctgtccttg	ccctcctgcc	tcttctccaa	ctccactgct	gtctgttcca	acagagcaag	360
acacagcgtc	cgtgtcggca	ngccctgaag	caagggccat	gactcccact	ggcttgagct	420
ccctgtcttg	tttcttcaag	tattttgtan	ctgagaaagt	tgtaccaanc	gaatcnacct	480
ctccccaaga	ccgggaagac	ctcccgccaa	ggctgatttg	gggcgcctcc	caagcactct	540
tccaaaatgg	ctcccgctcg	ttgggacana	catccnactt	tttaangcct	tccggggnaa	600
agggctgggn	taaggacatt	gggtncccc				629

&lt;210&gt; 323

&lt;211&gt; 798

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 323

aacattttctg	tgatcaacat	tgcttactgc	gtttctactg	tcaacaaaat	gagcccaaca	60
tgacaactca	gaaaggacct	gaaaacttac	attatgatca	gggttgctcag	acatctcgaa	120
ccaaaatgac	aggttcagca	ccacccccct	ctccaacacc	taacaaagag	atgaagaaca	180
aagcagttct	ttgcaaacct	ttaacaatga	caaaagctac	ttactgtaaa	cctcacatgc	240
agaccaaatac	ttgtcagaca	gatgatactt	ggaggacaga	atatgttcca	gtgcctatcc	300
ctgtgcctgt	gtatatccca	gttccctatgc	acatgtacag	tcagaatatt	cctgttccta	360
ctacagttcc	tgttccctgtg	ccagttcctg	ttttcttgcc	tgctccattg	gacagcagtg	420
agaagattcc	tgagcaatt	gaggagctaa	aaagcaaggt	ttcttcagat	gctcttgata	480
cagagttgct	tacaatgacg	gatatgatga	gtgaagacga	ggggaaaaca	gagacaacca	540
acatcaacag	tgtaattatt	gaaacagata	taattgggtc	agaccttttg	aagaactctg	600
accagagagc	acagtccagc	atgcctgatg	taccatatga	accagatttg	gatatcgaa	660
tagattttcc	cagagctgct	gaaggagcct	tgatatggga	aaatgaattt	ttattacca	720
ccngtttttg	ggcgaaagaa	tatgaaggaa	caagcccaaa	cctcgattct	aaaaaaaaag	780

ggagccaagg agaaaagg

798

<210> 324  
 <211> 754  
 <212> DNA  
 <213> Homo Sapiens

&lt;400&gt; 324

aaaaggacac	taagggtttta	ataaggggaa	caaaaaattg	ttttcaccag	catagattca	60
cattacagta	caccaatatt	gacagcattc	tcttgtctat	ttttggtaca	gaagatggta	120
tctctctaca	taaccttgta	aggcttcagt	aactaaaatg	taaaacccaa	caaaacaaaa	180
ccccaaaaa	aaacaaaaac	cccagcctat	tagttttacag	tttattttta	aaattccgaa	240
agacactgca	agttctaaac	ttttagtagt	gctaccata	cacaaccatc	tggttaagaa	300
cccagtaaaa	gagccccctt	ccaaggaagc	tttgcaacag	tagagttgtg	caatatggat	360
gtttcttact	acaagaaaaa	aattatacat	ggcacattct	cattcatatt	ctgtaatgta	420
aaaagttaca	aacataccta	atcaaataaa	taataataaa	aaaagaattt	gaatgtattt	480
gttaagtatc	ctaaaaccac	tacatagaat	aatggcaact	ttcactcaca	gattatttac	540
atggttaatac	ccagcgtggg	tacactgcta	caaaactcaa	aacagaagga	gtaaacttga	600
aatgttttcc	ataataaaga	tctagcanca	tgactatcct	aatgccgttt	tatcccgaat	660
gcttctggca	acgttccctt	ttaatccggt	gtctcatcca	attcaaaaaa	tggcctttac	720
caaaaaatat	cctttttaca	gaaagaaacc	cggt			754

<210> 325  
 <211> 854  
 <212> DNA  
 <213> Homo Sapiens

&lt;400&gt; 325

ggtcaggggt	gagagctgga	atctctgcac	gggccttggg	aaacgactgt	cttcttctgc	60
caaaatgtca	ggaattggaa	ataaaagagc	agctggagaa	cctggcacct	ccatgcctcc	120
tgagaagaag	gcagctgttg	aagattcagg	gaccacagtg	gaaacaatta	agctaggagg	180
tgtctcttca	acggaggaac	tagacattag	aacactgcaa	acaaaaaatc	gcaagctggc	240
agaaatgttg	gatcagcggc	aggccattga	agatgaactt	cgtgagcaca	ttgaaaaact	300
ggaacgacga	caggccactg	atgatgcctc	actattgatt	gtcaaccgat	actggagtca	360
gtttgatgaa	aacatccgta	tcatecttaa	acgttatgat	ctggagcagg	gcttgggaga	420
cctactcaca	gaacgaaaag	cccttgttgt	gcctgaacca	gaaccagact	ctgatagcaa	480
tcaggagcgt	aaagatgacc	gagagagagc	agttccagtg	aagagatgga	gtctcagctg	540
caggaacgtg	tggagtcttc	ccgccgagcc	gtgtccaga	ttgtgactgt	ttatgataaa	600
ttgcaagaaa	aagtggagct	cttatcccg	gaagctaaac	agtgggagat	aatctgatag	660
tgaggggaag	canttgcag	gagctgaact	ctttcctcgc	acaaggagaa	tattaaggct	720
acanggaatt	gacaagatct	tcctcaggaa	aaagcatcgc	aacctgggtc	tcaaggngtt	780
cctccaaagt	tgcaagaggt	aaaattgggg	naaaagccga	attcaccaan	tttccggtcc	840
tggaagtcca	anga					854

<210> 326  
 <211> 760  
 <212> DNA  
 <213> Homo Sapiens

&lt;400&gt; 326

caaaactgaat	cctgctttta	ttcaagcttg	tggaagaaca	agtcctacag	aaacattcca	60
cagaattttc	tggaagagag	ggatcacaa	aacctgttaa	aaaggagact	gagagtaatt	120
catagctcac	caagttctct	ccgtatcaaa	tttccagaat	acccacaaga	tttcttcacc	180
agctcagtc	tgactcaacc	tcttcaatct	ttatttcatt	agaagacaaa	gggtcatatt	240
atttaaaatt	attctagtct	caagaaattt	aaagacttga	agtagtagag	cattcaaaac	300

ttaaataact	ttaacaagaa	agccagctga	tcttaacaag	ttactctgct	agtaaatggg	360
aatagactg	aatcattcta	gacataat	cattagggct	gcaaaccacc	caggggagag	420
tagcacaatt	ataccatttt	gtaatccaca	ttcacaagaa	gtttgctaca	caaatgaaga	480
aaactttgtg	cccatagaca	acttat	taaaatatca	ctccccaaaa	gtagccatgt	540
ttccactttt	gttccctttt	ccacatcaaa	aataccaact	tgatttcttc	aggaggaatg	600
gacaatccaa	gtttatacaa	gtgggctggg	aaaaagaaaa	cactgaaaag	tctaaaagca	660
caagataaac	aaagcctggg	aagggaagac	agttaagagt	tatttgtttc	caantcaatc	720
cnaaaaccca	anggcttgta	attaacaagt	cctttccggc			760

&lt;210&gt; 327

&lt;211&gt; 852

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 327

caaagcagtt	ctttgcaaac	ctttaacaat	gacaaaagct	acttactgta	aacctcacat	60
gcagacccaa	tcttgctaga	cagatgatac	ttggaggaca	gaatatgttc	cagtgcctat	120
ccctgtgcct	gtgtatatcc	cagttcctat	gcacatgtac	agtcagaata	ttcctgttcc	180
tactacagtt	cctgttcctg	tgccagttcc	tgtttttctg	cctgctccat	tggaacagcag	240
tgagaagatt	cctgcagcaa	ttgaggagct	aaaaagcaag	gtttcttcag	atgctcttga	300
tacagagttg	cttacaatga	cggatatgat	gagtgaagac	gaggggaaaa	cagagacaac	360
caacatcaac	agtgtaatga	ttgaaacaga	tataattggt	tcagaccttt	tgaagaactc	420
tgaccagag	acacagtcga	gcacatgtac	tgaccatgat	gaaccaagat	ttggatatcg	480
aaatagattt	tccagagcgt	gctgaggagc	ttgatattga	aaatgaattt	ttattaccac	540
ctgttttttg	cgaagaatat	gaggaacagc	ccaagacctc	gatctaaaaa	aaaagggagc	600
caagagaaan	gctgtatcaa	ggataccaag	tctcatgatg	ataagtctga	caatttcaga	660
atgcagcatt	cctttcfaat	tatacgtatg	ggcgtaaatg	catgggnaac	accgggtcaa	720
aaactaagnn	acttgatga	aagatcctcc	gggnaattag	aatgagttaa	aatccttcna	780
aatccantna	agtttaaaag	agggntaat	cccctcaaaa	ccanagctgg	ngccttaaaa	840
aggggttaaa	cc					852

&lt;210&gt; 328

&lt;211&gt; 799

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 328

aaaaggacac	taagggttta	ataaggggaa	caaaaaattg	ttttcaccag	catagattca	60
cattacagta	caccaatatt	gacagcattc	tcttgcttat	ttttggtaca	gaagatggta	120
tctctctaca	taaccttgta	aggcttcagt	aactaaaatg	taaaacccaa	caaaacaaaa	180
ccccaaaaca	aaacaaaaac	cccagcctat	tagttttacag	tttattttta	aaattccgaa	240
agacactgca	agttctaaac	ttttagtagt	gctacccata	cacaaccatc	tggttaagaa	300
cccagtaaaa	gagccccctt	ccaaggaagc	tttgcaacag	tagagttgtg	caatatggat	360
gtttcttact	acaagaaaaa	aattatacat	ggcacattct	cattcatatt	ctgtaattga	420
aaaagttaca	aacataccta	atcaaataaa	taataataaa	aaaagaattt	gaatgtattt	480
gttaagtatc	ctaaaaccac	tacatagaat	aatggcaact	ttcactcaca	gattattttac	540
atggtaatac	ccagcgtggg	tacactgcta	caaaactcaa	aacagaanga	gtaaacttga	600
aatgttttcc	ataataaaga	tctagcaaca	tgactatcca	atgctgtttt	atcccagattg	660
cttctgcaac	gttcttttta	atccgtgtct	catccagttc	anaantgtcc	ttatcaanaa	720
taacctttac	tagaagaaac	cgtncagaca	tattttcaan	gggtttccgg	tccaattgaa	780
gttanacgtn	taccaaaca					799

&lt;210&gt; 329

&lt;211&gt; 978

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 329

ggaagatggc	ggcgcccggt	ccacagcggg	cgtggaccgt	ggagcagctg	cgcagtgagc	60
agctgccc	gaaggacatt	atcaagtttc	tgcaggaaca	cggttcanat	tcgtttcttg	120
cagaacataa	attattagga	aacattaaaa	atgtggccaa	gacagctaac	aaggaccact	180
tggttacagc	ctataacat	ctttttgaaa	actaagcgtt	ttaagggtag	tgaaggtata	240
agtaaagtgt	ctgagcaagt	aaaaaatgtg	aagcttaa	gaagataaac	ccaaagaaac	300
caagtctgaa	gagaccctgg	atgaggggtc	cccaaatat	actaaatcct	gttctgaaaa	360
aggagagataa	aaccaacttt	cccaaaaagg	gagatgttgt	tcactgctgg	tatacaggaa	420
cactacaaga	tgggactgtt	tttgatacta	atattcaa	aagtgcagag	aagaagaaaa	480
atgccaaagg	tttaagtttt	aaggctcgag	taggcaag	tatcagagga	tgggatgaag	540
ctctcttgac	tatgagtaaa	ggagaaaagg	ctcgactgga	gattgaacca	gaatgggctt	600
acggaagaa	aggacagcct	gatgccaaaa	ttcnccaaa	tgcaaaactc	acttttgaag	660
tggaattagt	ggatatgtat	tgaatagca	gtgcttcagc	tctaaggata	ttagcaacaa	720
tgataaaact	tggccttgaa	gaaatttact	caactagtta	gaacttgta	ctattgtaaa	780
ggaagagtca	actggaaaat	tcaaggagtt	aataaaat	gtttacttgg	tcccagcttt	840
tgagagataa	atcccttatg	aatccctgg	ctaaaatact	ttcctacagc	tgtgtaaaa	900
actgggtcaag	gagaactttt	tccttttacc	tcattgtgtg	aacttaagt	gctcaataaa	960
aattgatccn	ctgtcttg					978

&lt;210&gt; 330

&lt;211&gt; 1017

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 330

cgatcggcgg	agctcccacc	tccgcttaca	gctcgctgce	gccgtcctgc	cccgcgcccc	60
caggagacct	ggaccagacc	acgatgtgga	aacgctggct	cgcgctcgcg	ctcgcgctgg	120
tggcggtcgc	ctgggtccgc	gccaggaag	agctaaggag	caaatccaag	atctgtgtcca	180
atgtgttttg	tggagccggc	cggaatgtg	cagtcacaga	gaaaggggaa	cccacctgtc	240
tctgcattga	gcaatgcaaa	cctcacaaga	ggcctgtgtg	tggcagta	ggcaagacct	300
acctcaacca	ctgtgaactg	catcgagatg	cctgcctcac	tggatccaaa	atccaggttg	360
attacgatgg	acactgcaaa	gagaagaaat	ccgtaagtcc	atctgccagc	ccagttgttt	420
gctatcagtc	caaccgtgat	gagctccgac	gtcgcatcat	ccagtggctg	gaagctgaga	480
tcattccaga	tggctgggtc	tctaaaggca	gcaactacag	tgaatccta	gacaagtatt	540
ttaagaactt	tgataatggt	gattctcgcc	tggactccag	tgaattcctg	aagtttgtgg	600
aacagaatga	aactgccatc	aatattacaa	cgtatccaga	ccaggagaa	aacaagtgtc	660
ttaggggact	ctgtgttgat	gctctcattg	aactgtctga	tgaatgtgt	gattggaaac	720
tcagcttcca	agagtttctc	aagtgcctca	acccatcttt	caaccctcct	gagaagaagt	780
gtgccctgga	ggatgaaacg	tatgcagatg	gagctgagac	cgaagtggac	tgtaaccgcg	840
tgtgtctgtg	cctgtggaaa	ttgggtctgt	cagccatgac	ctgtgacnga	aagaatcaga	900
agggggccca	gaccagacn	gaggangaga	tgancngata	tgtccaggag	ctccaaagct	960
taggaaacag	cttgaaaaga	nccagagagg	gagcccccaa	agagattatg	aggaggc	1017

&lt;210&gt; 331

&lt;211&gt; 799

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 331

cccagaaaga	tcatacag	ttctgtaaaa	gaagatgtac	acctgaaaaa	ggcagaaaat	60
gcctggaagc	caagccaaaa	acgagacagc	caagccgatg	atcccga	cattaaaacc	120
caggagcttt	ttagaaaagt	tcgaagtatc	ttaaataaat	tgacaccaca	gatgttcaat	180
caactgatga	agcaagtgtc	aggacttact	gttgacacag	aggagcggct	gaaaggagtt	240

attgacctgg	tctttgagaa	ggctattgat	gaacccagtt	tctctgtggc	ttacgcaaac	300
atgtgtcgat	gtctagtaac	gctgaaagta	cccatggcag	acaagcctgg	taacacagtg	360
aatttccgga	agctgtctact	gaaccgttgc	cagaaggagt	ttgaaaaaga	taaagcagat	420
gatgatgtct	ttgagaagaa	gcagaaagaa	cttgaggctg	ccagtgtctcc	agaggagagg	480
acaaggcttc	atgatgaact	ggaagaagcc	aaggacaaag	cccggcggag	atccattggc	540
aacatcaagt	ttattggaga	actcttttaa	ctcaaaatgc	tgactgaagc	catcatgcat	600
gactgtgtgg	tgaagctgct	aaagaacat	gatgaagaat	ccctggagtg	cctgtgtcgc	660
ctgtccacca	ccattggcaa	agacttggac	tttgaaaaaa	gccaaagcca	cgtatggacc	720
cagtacttta	atcagatgga	gaaaattgtg	aaaggaaaga	aaaacctcat	ctaggatcgg	780
gtcatgcttt	caggaggtt					799

&lt;210&gt; 332

&lt;211&gt; 881

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 332

cgatcgggcg	agctcccacc	tccgcttaca	gctcgtgcc	gccgtcctgc	cccgcgcccc	60
caggagacct	ggaccagacc	acgatgtgga	aacgctggct	cgcgctcgcg	ctcgcgctgg	120
tggcgttcgc	ctgggtccgc	gccgaggaag	agctaaggag	caaatacaag	atctgtgcc	180
atgtgttttg	tggagccggc	cggaatgtg	cagtcacaga	gaaaggggaa	cccacctgtc	240
tctgcattga	gcaatgcaaa	cctcacaaga	ggcctgtgtg	tggcagtaat	ggcaagacct	300
acctcaacca	ctgtgaactg	catcgagatg	cctgcctcac	tggatccaaa	atccagggtt	360
attacgatgg	acactgcaaa	gagaagaaat	ccgtaagtcc	atctgccagc	ccagttgttt	420
gctatcagtc	caaccgtgat	gagctccgac	gtcgcacatc	ccagtggctg	gaagctgaga	480
tcattccaga	tggctgggtc	tctaaaggca	gcaactacag	tgaatcccta	gacaagtatt	540
ttaagaactt	tgataatggt	gattctcgcc	tggactccag	tgaattcctg	aagtttgtgg	600
aacagaatga	aactgccatc	aatattacaa	cgtatccaga	ccaggagaac	aacaagttgc	660
ttaagygact	ctgtgttgat	gctctcattg	aactgtctga	tgaaaatgct	gantggaaac	720
ttagctttca	agaagtttct	caagngcctt	naacccatct	ttnaaccttc	ttgagaagaa	780
tgtgcccttg	gaggatgaaa	cgtatgcan	atggagcttg	aaancgaggt	ggactgtaan	840
ccgttggnet	gggncctggg	gaaaattggg	tcttgacaa	g		881

&lt;210&gt; 333

&lt;211&gt; 810

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 333

gtgcagtcac	agagaaagg	gaacccacct	gtctctgcat	tgagcaatgc	aaacctcaca	60
agaggcctgt	gtgtggcagt	aatggcaaga	cctacctcaa	ccactgtgaa	ctgcatcgag	120
atgcctgcct	cactggatcc	aaaatccagg	ttgattacga	tggacactgc	aaagagaaga	180
aatccgtaag	tccatctgcc	agcccagttg	tttgctatca	gtccaaccgt	gatgagctcc	240
gacgtcgcac	catccagtgg	ctggaagctg	agatcattcc	agatggctgg	ttctctaaag	300
gcagcaacta	cagtgaatc	ctagacaagt	attttaagaa	ctttgataat	ggtgattctc	360
gcctggactc	cagtgaattc	ctgaagtttg	tggaaacaga	tgaactgcc	atcaatatta	420
caacgtatcc	agaccaggag	aacaacaagt	tgttagggg	actctgtgtt	gatgctctca	480
ttgaactgtc	tgatgaaaat	gctgattgga	aactcagctt	ccaagagttt	ctcaagtgcc	540
tcaacccatc	tttcaaccct	cctgagaaga	agtgtgcct	ggaggatgaa	acgtatgcag	600
atggagctga	gaccgangtg	gactgtaacc	cgtctgtct	gtgcctgtgg	aaattgggtc	660
tgtcagccat	gacctgtgac	ngaaagaatc	agaagggggc	ccagacccag	acngaggang	720
agatgancng	atatgtccag	gagctccaaa	gcttaggaaa	cagcttgaaa	aganccagag	780
aggagcccc	caaagagatt	atgaggaggc				810

&lt;210&gt; 334

<211> 808  
 <212> DNA  
 <213> Homo Sapiens

<400> 334  
 cactttaatt tctttattca tcaatagtat ccgaaaagga agaalcagga gttacaaaaa 60  
 caagttaaatt gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc 120  
 aacagaaaact tgttttagatt gtttcttgaa gtttgactac ttaaaaacat aggtgtaaaag 180  
 gaaagacatt cagactggct cacgtgggct tgttagcagg cagaggaacc ctgctttcca 240  
 aaaactgata tagtccagag tcacggcatg tgggaatgtt tccatggaca ctggatctta 300  
 acagatgcta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg 360  
 ctaagcccta tgctttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg 420  
 ctccatgcaa aactttatgg aagactcccc agactaggct atttagcagc ttccatgaat 480  
 ggtcctcaga tcatgtgatt ctacggcata gacgacagct gccctattta cacagaagct 540  
 gcagaactca agaggaatgt ggatttgctc ttgggaagtt caatgttgca gggtaaagta 600  
 agtcttggtat gataaccatg ttctaaatga ctagtgaaga gacactgngg tttcttgctt 660  
 ttaacaaatt gngggactct tggcccttct tcccatagnng tccaagggtt ggtaaaacct 720  
 ttggattaag gcgtgncctgc ttgggagttc ttccaaggca ctttggaacca ggaacctgc 780  
 atttcaaact ggaccaagtgc gaggtttg 808

<210> 335  
 <211> 758  
 <212> DNA  
 <213> Homo Sapiens

<400> 335  
 gcaattgggt atctcgaaga gcagatcaag ggcctaaaac tatcgaacag attcacaaag 60  
 aggtctaaaat agaagaacaa gaagagcaaa ggaaggtcca gcaactcatg accaaagaga 120  
 agagaagacc aggtgtccag agagtggacg aaggtgggtg gaacactgta caaggggcca 180  
 agaacagtcg ggtactggac ccctcaaaat tcctaaaaat cactaagcct acaattgatg 240  
 aaaaaattca gctggtacct aaagcacagc taggcagctg gggaaaaggc agcagtgggtg 300  
 gagcaaaggc aagtgtgact gatgccttac ggtcaagtgc ttccagtta aacagattct 360  
 ctgccctgca acctccagca cctcagggt ccacgccatc cagcctgta gagtttgatt 420  
 cccgaaggac cttaactagt cgtggaagta tgggcaggga gaagaatgac aagccccttc 480  
 catctgcaac agctcgccca aatactttca tgaggggtgg cagcagtaaa gacctgctag 540  
 acaatcagtc tcaagaagag cagcggagag agatgctgga gaccgtgaag cagctnacan 600  
 gaggtgtgga tgtggagagg aacagccttg agctgaaccg aaataaaca gggagtcagc 660  
 aaaaaccgca aanttcagca atgtcagctt attgacaagg gttgattatc agaagaggac 720  
 tgganaggaa gtccaaatct atcatggtta attttttc 758

<210> 336  
 <211> 785  
 <212> DNA  
 <213> Homo Sapiens

<400> 336  
 aaacttgcaa tgtttgtctt tatttgttc tttatatattt caaagtgaag agaaatagta 60  
 ctgagtcatt ttctttttgt ttttttaaat atttgttcta tgtatttaca agccttaaaag 120  
 ttgtcttaaa gatttcaaga gtatttaagag tacttttctc agggtagcac tttttttttt 180  
 ttttaacaat tcttgaggtt ctgtgggtcca cagcatttcc ttctgtttca atgttatgta 240  
 cgttttgatt actattgnga ttttttaaat tttctgaagc aagctgagag gcaggcagaa 300  
 agatttgatg ccaaaaaaaa aaaaatcttt cttaccttgt tcaccccaaa ctttctcaaa 360  
 tctggactaa atgctatacc ttaaaacaaa catgaggngc atcttgaagg ggagggaat 420  
 ttattttctt gcttttctat tatacaagtt gtttacagaa actgcaaatt aaaaaattac 480  
 actggcattt gcagtcctta aaataaatta aaagttctca actttttttt ttttgctaaa 540



cattttttta	agtatgagtc	cttggtttaa	aagaaaagat	taaaacagaa	aatattttct	600
ataaatacnt	gnattttggg	tttaagggct	cccgccctaa	ggnttgaagg	ttacttttat	660
cccaggacc	tttttcctcc	atggaacccc	tttttttcnc	ttttcccttt	tcccacttcg	720
ngccnccnt	nggggggttc	tggcaaaaa	tggcccttgc	tgcnctgggg	aattggccaa	780
aaacc						785

&lt;210&gt; 337

&lt;211&gt; 643

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 337

ggaagatggc	ggcgccggtt	ccacagcggg	cgtggaccgt	ggagcagctg	cgagtgagc	60
agctgcccc	gaaggacatt	atcaagtttc	tgcaggaaca	cggttcanat	tcgtttcttg	120
cagaacataa	attattagga	aacattaaaa	atgtggccaa	gacagctaac	aaggaccact	180
tggttacagc	ctataaccat	ctttttgaaa	actaagcgtt	ttaanggtac	tgaangnta	240
nntaaagtg	ctgancaagt	naaaaatggn	aancttantg	aagataancc	caaagaaacc	300
aagtntgang	agaccctgga	tgaggggtcca	ccnaaatata	ctaaatctgn	tctgaaaaag	360
ggagataaaa	ccaactttcc	caaaaaggga	gatgttggtc	actgctggta	tacaggaaca	420
ctacaagatg	ggactgtttt	tgataactat	attcaaaca	gtgcaaagaa	naagaaaaat	480
gccaagcctt	taagttttta	ggtcggagta	cgcaaaagtt	atcanaggat	ggggatgaag	540
ctctcttgac	tatgagtaaa	ggagaaaagg	ctngactgga	aaatggaccc	aaaatggctt	600
accggaagaa	aagggacagc	ctgatnccaa	aatttcccca	aat		643

&lt;210&gt; 338

&lt;211&gt; 831

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 338

caagacagng	gatcaatttt	tattgagcca	cttaagttta	caacatgagg	taaaaggaaa	60
aagttctcct	tgaccagtat	tttacacagc	tgtaggaaaag	tatttttagac	cagggattca	120
taagggattt	atctctcaaa	agctgggacc	aagtaaaca	attttattaa	ctccttgaat	180
tttccagttg	actcttcctt	tacaatagta	acaagttcta	actagttgng	taaatttctt	240
caaggccaag	ttttatcatt	gttgctaata	tccttagagc	tgaagcactg	ctattttcaat	300
caatatccac	taattccact	tcaaaaagtga	gttttgcat	tggnggaatt	ttggcatcag	360
gctgtccttt	ctttccgtaa	gccattcttg	gttcaatctc	cagtcgagcc	ttttctcctt	420
tactcatagt	caagagagct	tcattccatc	ctctgataac	tttgccctact	ccgaccttaa	480
aacttaagg	cttggcattt	ttctttctct	ttgcacttgt	ttgaatatta	gtatcaaaaa	540
cagtcccatc	ttgtagtgtt	cctgtatacc	agcagtgaac	aacatctccc	tttttgggaa	600
agttggtttt	atctcccttt	ttcagaacag	gatttagtat	attttggggg	accctcatcc	660
agggctctct	cagacttggg	ttctttgggt	ttatcttcat	ttaagcttca	cattttttac	720
ttgctcagac	actttactta	tactttcagt	acccttaaaa	ccgcttaagt	ttcaaaaaag	780
agggttatag	gctgnaaccc	aagggggggc	ttggttagct	ggccttgggc	c	831

&lt;210&gt; 339

&lt;211&gt; 758

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 339

ccaacatgtc	ccgtgggttc	agcgccgggt	ttgaccgcca	cattaccatt	ttttcacccg	60
agggtcggct	ctaccaagta	gaatatgctt	ttaaggctat	taaccagggt	ggccttacat	120
cagtagctgt	cagagggaaa	gactgtgcag	taattgtcac	acagaagaaa	gtacctgaca	180
aattattgga	ttccagcaca	gtgactcact	tattcaagat	aactgaaaa	attggttgtg	240

tgatgaccgg	aatgacagct	gacagcagat	cccaggtaca	gagggcacgc	tatgaggcag	300
ctaactggaa	atacaagtat	ggctatgaga	ttcctgtgga	catgctgtgt	aaaagaattg	360
ccgataatttc	tcaggtctac	acacagaatg	ctgaaatgag	gcctcttggt	tgttgatga	420
ttttaattgg	tatagatgaa	gagcaaggcc	ctcaggtata	taagtgtgat	cctgcagggt	480
actactgtgg	gtttaaagcc	actgcagcgg	gagttaaaca	aactgagtca	accagcttcc	540
ttgaaaaaaa	agtgaagaag	aaatttgatt	ggacatttga	acagacagtg	gaaactgcaa	600
ttacatgcct	gtctactggg	ctatcaattg	atttcaaacc	ttcagaaaata	gaagttggag	660
tagtgacagt	tgaaaatcct	aaattcagga	ttcttacngg	aagcagagat	tgatgcttac	720
cttgtgnntt	agcngagagg	agacttaacc	attggccg			758

&lt;210&gt; 340

&lt;211&gt; 840

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 340						
cacaaagcct	tgttttat	atatagagtc	ctaaccactt	cggtggtagg	aggagtggga	60
gaggtcctt	tttcaatcca	gggacctcca	tgatgttggg	ttgttggtac	caaacacaca	120
ggtaagtggc	atcacggatc	tggtaaacta	acgacaatgt	ttagtctctc	tctgctagag	180
caacaagggtg	agcatcaatc	tctgcttctg	taanaatcct	gaatttagga	tttcaactg	240
tcactactcc	aacttctatt	tctgaagggt	tgaaatcaat	tgatagaaca	gtagacaggc	300
atgtaattgc	agtttccact	gtctgttcaa	atgtccaatc	aaatttcttc	ttcacttttt	360
tttcaaggaa	gctgggtgac	tcagtttggt	taactcccgc	tgcagtggct	ttaaaccac	420
agtagtaacc	tgcaggatca	cacttatata	cctgagggcc	ttgctcttca	tctataccaa	480
ttaaaatcat	acaacaacca	agaggcctca	tttcagcatt	ctgtgtgtag	acctgagaaa	540
tatcggaat	tcttttacac	agcatgtcca	caggaatctc	atagccatac	ttggatttcc	600
agttagctgc	ctcatagccg	tgccttcttg	tacctgggat	ctgctgtcag	ctgcattccg	660
gtcatcacac	aaccaatggg	ttcagttatc	ttggaataag	tgaggtcact	gngctggaat	720
nccaataatt	tggcaggnac	ctttctttct	ggggngacaa	ttactggccc	agtcttttcc	780
tttggacagn	tactggaggt	aagggccacc	ctgggttaat	agccctttaa	aggentaatc	840

&lt;210&gt; 341

&lt;211&gt; 793

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 341						
cactttaatt	tctttattca	tnaatagtat	ccgaaaagga	agaatcagga	gttacaaaaa	60
caagttaaat	gcaatataga	agcctactaa	atacaaatat	aagttcacaa	acacatatgc	120
aacagaaact	tgtttanatt	gtttcttgaa	gtttgactac	ttaaaaacat	aggngtaaag	180
gaaagacatt	canactgggc	cncnggggct	tgntagcagg	cagaggaacc	ctgctttcca	240
aaaactgnta	tagtccanan	tcncggcatg	ngggaatgnt	tccatggacn	ctggatctta	300
acagatgcta	tagggtttac	aaaactacnc	acncagagaa	agcccaagga	agcctgcagg	360
ctaagcccta	tgcttttaga	gggctgaagg	aaccaaaccct	agtttaatcc	tgtttgnttg	420
ctccatgcaa	aacttttttg	aaactcccc	agactaggct	ttttancagn	nttccattga	480
atggggcnn	aaancnttgg	gaattttacg	gntnaaancn	aaagntngcc	ttntttncce	540
ccgaaagctt	tgaaaaactt	ttcagngggg	atnggggaat	ttggnntntt	ggggnggttc	600
aattgttncc	ngggtaaaaa	ganacccttg	gggaggnaaa	ccctgngtt	tnaannggcc	660
ttaggggaaa	naaccnttgg	gggtntcntt	ggnnttttaa	caaaattggg	gggncttttt	720
ggncccttcc	cccaaaaggg	ggcccanggn	ctgnggaaaa	aaccttttgg	antaaggggg	780
gncccnntt	gga					793

&lt;210&gt; 342

&lt;211&gt; 906

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 342

ccaacatgtc	ccgtgggtcc	agcgccggtt	ttgaccgcca	cattaccatt	ttttcacccg	60
agggtcggct	ctaccaagta	gaatatgctt	ttaaggctat	taaccagggt	ggccttacat	120
cagtagctgt	cagagggaaa	gactgtgcag	taattgtcac	acagaagaaa	gtacctgaca	180
aattattgga	ttccagcaca	gtgactcact	tattcaagat	aactgaaaac	attggttgtg	240
tgatgaccgg	aatgacagct	gacagcagat	cccagggtaca	gagggcacgc	tatgaggcag	300
ctaactggaa	atacaagtat	ggctatgaga	ttcctgtgga	catgctgtgt	aaaagaattg	360
ccgatatattc	tcagggtctac	acacagaatg	ctgaaatgag	gcctcttggg	tgttgtatga	420
ttttaattgg	tatagatgaa	gagcaaggcc	ctcagggtata	taagtgtgat	cctgcagggt	480
actactgtgg	gtttaaagcc	actgcagcgg	gagttaaaca	aactgagtca	accagcttcc	540
ttgaaaaaaa	agtgaagaag	aaatttgatt	ggacatttga	acagacagtg	gaaactgcaa	600
ttacatgcct	gtctactgtt	ctatcaattg	atttcaaacc	ttcagaaaata	gaagttggag	660
tagtgacagt	tgaaaaatcct	aaattcagga	ttnttacaga	agcagagatt	gatgctcacc	720
ttgttgctct	agcagagaga	gactaaacat	tgtcgttagt	ttaccagatc	cgtgatgccca	780
cttacctgtg	tgttttggtaa	caacaaacca	acatcatgga	ggtccctgga	ttgaaaaagg	840
agcctctccc	actcctccta	ccaccgaagt	ggttaggact	ctatataaat	aaaacaaggc	900
ttttgg						906

&lt;210&gt; 343

&lt;211&gt; 875

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 343

gcaaggcaat	tgagcgtgga	acaggaaatg	acaattatag	aacaacggga	attgctacaa	60
tcgaggtggt	tttaccacca	agactaaaaa	aagataggaa	aaacttggtg	gagacccgat	120
tgcacatcac	tggcagagaa	ctgaggtcca	aaatagctga	aacctttgga	cttcaagaaa	180
attatatcaa	aattgtcata	aataagaagc	aactacaact	agggaaaacc	cttgaagaac	240
aaggcgtggc	tcacaatgtg	aaagcgatgg	tgttgaact	aaaacaatct	gaagaggacg	300
cgaggaaaaa	cttccagtta	gaggaagagg	agcaaatga	ggccaaactc	aaagaaaaac	360
aaattcagag	gaccaagaga	ggactagaaa	tactggcaaa	gagagcagca	gagacagtgg	420
tggatccaga	aatgacaccg	tacttagaca	tagctaacca	gacaggcaga	tcaatcagaa	480
ttcccccatc	agaaaagaaa	gcccttatgt	tagctatggg	atatcatgag	aagggcagag	540
ctttcctgaa	aagaaaagaa	tatggaatag	ccttgccatg	tctgttggac	gctgacaaat	600
atthctgtga	gtgttgacga	gagctgctgg	acacagtggg	taactatgcc	cgtcttcagc	660
tggatatagt	gtggtgttac	tttcgcctgg	aacagctgga	atgccttgat	gatgcagaaa	720
aaaaattaac	ttggnccaga	aatgctttaa	aaattgggtc	ggagaaatcn	tcgaaactgg	780
tccccntaaa	nggaattgtg	gggaaaagag	aangtctggg	tctaagactn	tacttacttt	840
nagggatccg	aacttttcca	gggggaatga	tgtaa			875

&lt;210&gt; 344

&lt;211&gt; 629

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 344

atatttccca	ccttttattt	ccatcggtat	catccgttta	aaaagaatga	caagaagatt	60
cccacagtc	caaaactggac	caccacact	ttgaaaaagt	tggagcattt	cagccggctc	120
cgcatgatcc	atcctgtctt	cagtcagtgc	cttctggaag	ggagggaaag	tcttggatgc	180
acctggcact	caatccactc	ggcacctggc	tgtctgtcgc	gtcctggggc	tggaaaggaa	240
tcccactggg	cacacatcta	cagaggagt	cgtggcgag	tgaggacggg	tactgctgga	300
gccgacacac	agcgaactac	atacttttag	aaagagcctc	tgtcacatgg	ctagaacaac	360
aacaacaaca	aagaaaaccc	acaaaaaac	tggagaaaat	atatctaaat	ctctgatagg	420

tctcttagct agcagtgagt tcagtatgac agcacagagt ctaaaaatat taattaaaaa	480
taaattgctt tggtagcat ttaaaccctt cccattcaat agaagatttc tgtaatgagg	540
aatgctgaat atatataaag cctgccactc aatctttgaa tttcngggg cgcaatttta	600
ctgaactaag anccctaaaa caactggcg	629

&lt;210&gt; 345

&lt;211&gt; 724

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 345

cttgggtggg tatttttctt ttctgngtcc ttccccaanca gcagttggaa ttttcttttg	60
aacacaaaagt aaattaatgt tnatactgnt ttttcacctg agtcatgtaa aagggtgactc	120
ctttcatttt aaaaagttat atttaatttt tgggggacctt aattaaaatt taacatttaa	180
ccatgngtnn tttttttgta aacagtctac atgtcaacaa atggataagg gttacaaaag	240
gcaaatnctg acttcatttg tgttttaaac acgattatat gaatttttct tttttaatta	300
aaaaaatgac ataaaacat tcatataggt cctcttctct caactgcttt gagatatagc	360
tttaaatatg ggtagatcaa gacaagtaat gttgnaatc tcttatcttg catagaaaag	420
aaaaaataa aggaacttat ttccttccta aggtctcagc tagtttctta ngtcttttct	480
tcagctccaa tggaaattnc tcatagcact tcttacagac tggcttcag tcaaaactcca	540
caaacttatt cttgantgtt aatttagtgt tgcaggtana acaggcaaag cagttcacgc	600
accaggcctt attaagagca gagaccccca tcaccttcta taacacgatt gcagtgaggaa	660
gcaaacaatca ccaaatagct gggttatagn gagtttcaca atatgcccag gcctttcctt	720
tcaa	724

&lt;210&gt; 346

&lt;211&gt; 907

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 346

agagcgaaat ttaccactg agcaagtgac tgccatgctt ttgtccaaac tgaaggagac	60
agccgaaagt gttcttaaga agcctgtagt tgactgtgtt gtttcgggtc cttgtttcta	120
tactgatgca gaaagacgat cagtgatgga tgcaacacag attgctggtc ttaattgctt	180
gcgattaatg aatgaaacca ctgcagttgc tcttgcatat ggaatctata agcaggatct	240
tcctgcctta gaagagaaac caagaaatgt agtttttgta gacatgggcc actctgctta	300
tcaagtttct gtatgtgcat ttaatagagg aaaactgaaa gttctggcca ctgcatttga	360
cacgacattg ggaggtagaa aatttgatga agtggttagta aatcacttct gtgaagaatt	420
tgggaagaaa tacaagctag acattaagtc caaaaatccgt gcattattac gactctctca	480
ggagtgtgag aaactcaaga aattgatgag tgcaaatgct tcagatctcc ctttgagcat	540
tgaatgtttt atgaatgatg ttgatgtatc tggaaactatg aatagaggca aatttctgga	600
gatgtgcaat gatctcttag ctagagtgga gccaccactt cgtagtgtt tggaaacaaa	660
ccaagttaaa gaaagaagat atttatgcag tggagatagt tgggtgtgct acacgaatcc	720
ctgcggtaaa aggagaagat cagcaaaaatt tttcggtaaa gaacttagta caaccnttaa	780
atgctgatga aactgcactc gaggctgggc cattgcantg ggccatctta tcgcctgctt	840
tcaaagtcgc agaantttct atcactgatg tagtaccata tccatatctc tgaaaaggga	900
atcttcc	907

&lt;210&gt; 347

&lt;211&gt; 711

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 347

ataatagnct gttttaatan aaacaagngt tggaatcaat caatgnccat ttcaggaagc	60
---	----

ttnttgctctg	aatccgaagg	cncagctgng	tctgtaccct	gctcancagc	ctgggggacct	120
gggttgctctc	cttgnccatc	cactgggtcca	ttctgctctg	catttttttg	ttcctntttt	180
ggaggttcca	ctttgggttt	gggttttgaa	attatagggc	tacaagtact	tgncagctcc	240
ttaatTTtag	cttcaatctc	ttttgacttg	acaactggat	ccatggncaa	actntgcttg	300
ttctgcaaat	ttagcttggt	attcatccac	tccattgctt	catttgggct	tttttctacc	360
tttgtcatgt	cagcagcatc	cgaatgatca	tactgggtcct	ccttgntttt	gaaagagctg	420
attatTTtca	tatactgntg	aatctgnttc	cctagtctct	caaataattt	tggtcggtct	480
tnaaattcct	ggaaacgtat	nttaataggt	tgacctaaat	tttttaattc	agccaactta	540
tcaacataaa	cttgcttttg	ctggcttctc	catcctcata	caaccaattt	tcagtatctt	600
ccagtttcaa	agtaaaactg	ttacgancat	nttactnnc	aaacttctca	tattcnccac	660
taaagcttgg	ctctcatttc	ataccccata	tttctccca	ctggggctctt	a	711

&lt;210&gt; 348

&lt;211&gt; 862

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 348

cttgagcctc	atgtaaccgg	cgtcttagat	caccaatctc	ctcttgggct	tcagatttaa	60
tgtcatttgc	aatgactact	gcagtctgga	gatcagcctg	aaactgccgc	cattccgcag	120
attcttcccg	aagtcttctg	tggagtgtct	ttatttctct	ttccatgtcg	tgcttttggg	180
cctggagttt	tttaactgta	ttctctagat	cagaaataat	gagggtgtca	tgaagtttca	240
cagcacgatg	ttgttctact	tcattctcaa	gttcaaagat	ggtttctttc	atgtcactcc	300
tttctgtttc	tttttcatcc	aggtctgac	ttaatTTtct	taacgtcata	ttcaaattct	360
caatttgttt	cttagcttct	tcttggaagg	ctcgggtattc	atcctctacc	ttagcaatgg	420
catcctgtaa	tcgattggca	tcatttccgg	tatgagccag	atcttctctg	aagctactag	480
ccaaagtctc	tgctttttct	ttgtccagcc	tgacactctc	caggaggtcc	tgaatatcag	540
attnctctcc	agagttatgg	atagaataca	gctctgccac	tttctgcttt	tcattctcca	600
gctgagcctt	caggcgattc	atctctatct	ggtcactggc	cactgnggct	ttgnattcct	660
ctaactgtgg	tgncaggtct	gcttctcctt	tctgctcnac	tcaaataaat	tcgctccata	720
tggngggact	ggcgctcctt	tggagtggcc	cctatcattt	cttgnggctt	tccttantgg	780
ccttgggttc	tggccatttt	tccaaagtat	tggcttttaa	atggctgggt	tgggacnccc	840
aaggaaagct	ggttcccggt	tc				862

&lt;210&gt; 349

&lt;211&gt; 832

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 349

aagacttttc	tacatcagtt	ttatttataaa	cacaaacaag	tatttctctt	tctgtaaggg	60
caaagtgttc	aaataatgcg	gaacacgaaa	cattgactaa	tacaagtgtc	ttaaatatga	120
aacaaaatta	ttttttataaa	aagcaaaaaga	ataaagaata	tatacaaaaag	ggacctggaa	180
tctgtaagct	gattccaaaa	acgaaataag	tagaaaaatcc	atgggtgaaac	ctgaacattc	240
tacctctgct	tgggagaagg	gctatcatatc	aacattcagt	cagctgaaga	tggatttggt	300
gagggtgtgc	tatacataaa	cttcagtcac	ttttgcttgt	gcagaatcat	cccaatcttc	360
ccaagactga	atgggcagtc	ctgtggcttt	cttcttttcc	catattccca	acaaggctac	420
gtgaagtcca	actcttgatg	agccgcttac	aacagcagtt	ccttaggagc	caacatgaca	480
gggtgggtcag	atttccctat	gagaaacaaa	actggccacc	tacagcaaaa	tatcaaaatg	540
ggtaagtcct	tccttctctt	tcctctctgat	tatatacaac	atatctcctt	tcaagactat	600
tatttccatc	atgcttattc	cttcacaaat	ctaaaccttg	aggtgatatg	aaggaaacca	660
acatcangaa	aagaaaactc	aattcagaaa	tgaagaaaac	tggcaggtat	acaatacacc	720
cccagaacat	ctcaatatcc	ctggccagta	caattcaagt	gnactgggta	caggcccata	780
ggattaaata	attgggcagc	tggggaataa	agctcatttt	tttncctcca	gg	832

<210> 350  
 <211> 782  
 <212> DNA  
 <213> Homo Sapiens

<400> 350  
 ccnaccatcag ttttattnaa aacacaaancc agnatctctn tttcngnang gncaaagggt 60  
 tnaaanaang cgnanacacna ancatngact aatncaaggg cttnaaatat gaancaaaat 120  
 natTTTTTaa aaaagcaaaa naataaanaa tatatncaaa ngggaccngn aatcngnaag 180  
 cngatnccaa aaccnaaata agtaaaaaan ccanggggaa nccngancat tcnacctnng 240  
 nttngnaaaa gggctatcat ncaacattca gncagntgaa nanggatngg nanagggngg 300  
 ncnatncata ancttcagnc attttngctn gggcaaaaatc atcccaatnt tcccaanact 360  
 gaanggnccag cccnggggct ttcttccttt nccanattcc caacanggnt acgngaagtt 420  
 caactntnga ngancggtt acaacagcag ttccttagga nccancatga caggggggnc 480  
 aaatttcctt atgagaancc aaacnggcc cctacagcaa aatatcaaaa ggggnaagnc 540  
 ctctcttctt ctctctcng attatatnca ccatatctcc tttcangact atnatttcca 600  
 tcaggctnat tcttccaaa atntaaacct tgaggggata tgaagggaacc caactcngg 660  
 aaangaaaaa tcaattcana aattgaagaa acctggcagg tatacaatac ccccccaggn 720  
 catntcaana tccctggcac aagnnccaat tcagggnccct ggtaccagcc ccatagaana 780  
 aa 782

<210> 351  
 <211> 775  
 <212> DNA  
 <213> Homo Sapiens

<400> 351  
 ggcaaggcgg ctgctgcgaa tcacaaaaag aacagggatg aaagaagaga agaaccttca 60  
 ggaaggaaat gaagttgatt ctccagagcag tattagaaca gaagctaaag aggcttcagg 120  
 tgagaccaca ggagttgaca tcaactaaat tcaagtcaag agatgtgaga ccatgagaga 180  
 gaagcacatg cagaaacagc aggagaggga aaaatcagtc ttgacacctc ttcggggaga 240  
 ttagcatct tgcaataccc aagtggcaga gaaaccagtg ctactgctg tgccaggaat 300  
 cacacggcac ctgaccaagc ggcttccac aaagtcaccc cagaagggtg aggtagaaac 360  
 ctcagggtat ggagactcat tattgaatgt gaaatgtgca gcacagacct tggaaaaaag 420  
 gggtaaagct aaacccaaag tgaacgtgaa gccatctgtg gttaaagttg tgtcatcccc 480  
 caaattggcc ccaaaacgta aggcagtgga gatgcacgct gctgtcattg ccgctgtgaa 540  
 gccactcagc tccagcagtg tcttacagga acccccagcc aaaaaggcag ctgtggctgt 600  
 tgtcccgctt gtctctgagg acaaatcagt cactgtgcct gaagcagaaa atcctagaga 660  
 cagtctttgt gcttgncttc aaccagtcct ttnttcagat tctttacccc cagaggtgtc 720  
 ttggnccctt ctcatncca aatggagcct tgaaaaactt cgcccgactt agctt 775

<210> 352  
 <211> 865  
 <212> DNA  
 <213> Homo Sapiens

<400> 352  
 cctacatcag ttttatttaa aacacaaaca agtattttct tttctgtaag ggcaaatggt 60  
 tcaaataatg cgggaacacga aacattgact aatacaagtg ctttaaataat gaaacaaaat 120  
 tatttttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag 180  
 gtgattccaa aaacgaaata agtagaaaat ccatgggtgaa acctgaacat tctacctctg 240  
 ctttgagaaa gggctatcat acaacattca gtcagctgaa gatggattgg tagaggtgtg 300  
 tctatacata aacttcagtc atttttgctt gtgcagaatc atcccaatct tcccaagact 360  
 gaatgggcag tctgtggct ttcttccttt tccatattcc caacaaggct acgtgaagtt 420  
 caactcttga tgagccgctt acaacagcag ttccttagga gccaacatga caggtgggtc 480

```

agatttcctt atgagaaaca aaactggcca cctacagcaa aatatcaaaa tgggtaagtc 540
cttccttcct cttcctcctg attatataca acatatctcc tttcaagact attatttcca 600
tcatgettaa tnttccaaa tctaaacctt gagngatat tgaanggaaa cccaccttca 660
nggaaaagaa aacctcaatt tcagaaatgg aagaaaaact ggcagggtat accaatacac 720
ccccccagag cattttttaa atatccctgg ncacaagtnc caattcaagg gnacctggtt 780
ccggnccata gaataaaaana ntgggcactt tggaaaaaag cncattttt ttcccttcag 840
gggggggttaa aaggggcccc aaacc 865

```

&lt;210&gt; 353

&lt;211&gt; 875

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 353

```

gactttccta catcagtttt attttaaaca caaacaagta tttctctttc tgtaaggcca 60
aatgggtcaa ataatgcgga acacgaaaca ttgactaata caagtgtttt aaatatgaaa 120
caaaattatt ttttaaaaaa gcaaaaagaat aaagaatata tacaaaaggg acctggaatc 180
tgtaagctga ttccaaaaac gaaataagta gaaaatccat ggtgaaacct gaacattcta 240
cctctgtctt ggagaagggc tatcatataa cattcagtca gctgaagatg gattggtaga 300
ggtgtgtcta tacataaact tcagtcattt ttgcttgtgc agaatcatcc caatcttccc 360
aagactgaat gggcagtcct gtggctttct tccttttcca tattcccaac aaggctacgt 420
gaagttcaac tcttgatgag ccgcttataa cagcagttcc ttaggagcca acatgacagg 480
tgggtcagat ttccctatga gaaacaaaac tggccacctt cagcaaaaata tcaaaatggg 540
gtaagtcttt ccttcctctt cctcctgatt atatacaaca tatctccttt caagactatt 600
atttccatca tgcttattcc ttccaaatct aaaccttga ggtgatatga aggaaaccaa 660
catcaagaaa aagaaaactc aattcagaaa atgaagaaaa ctggcaggga tacaatacac 720
ccccagagca tcttcaatat cccctgggca cagtncccaa ttcagggact gggtagagc 780
ccataagaat naaataattg ggcagctttg gaataaagcc tcattttttt ccttcaggn 840
gggttaaagg ggcccccaa accaaaaact ggggc 875

```

&lt;210&gt; 354

&lt;211&gt; 705

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 354

```

gactttccta catcagtttt attttaaaca canacangta tttctctttc tgtaaggcca 60
aatgggtcaa ataatgcgga acacgaaaca ttgactaata caagngcttt aaatatgaaa 120
caaaattatt ttttaaaaaa gcaaaaagaat aaagaatata tacaaaaggg acctggaatn 180
tgtaaggtga ttccaaaaac gaaataagta gaaaatccat ggtgaaacct gaacattcta 240
cctctgtctt ggagaagggc tatcatataa cattcagtca gctgaagatg gattggtaga 300
ggtgtgtcta tacataaact tcagtcattt ttgcttgtgc agaatcatcc caatcttccc 360
aagactgaat gggcagtcct gtggctttct tccttttcca tattcccaac aaggctacgt 420
gaagttcaac tcttgatgag ccgcttataa cagcagttcc ttaggagcca acatgacagg 480
tgggtcagat ttccctatga gaaacaaaac tggccacctt cagcaaaaata tcaaaatggg 540
taagnccctt cttcctcttc ctncctgatta tatacnncat atctcctttc aagactatta 600
tttccatcat gcttattcct tccaaatcta aaccttgagg ngatatgaan ggaaaccaca 660
tcaggaaaag gaaactcaat tccgaaatga ngaaaactgg caggt 705

```

&lt;210&gt; 355

&lt;211&gt; 862

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 355

WO 99/04265

```

ccatcagtga gagcgagctg agcgccagcg ccaactgagct gctgcaggac tacatgctga      60
cgctgcgcac caagctgtca tcacaggaga tccagcagtt tgcagcactg ctgcacgagt      120
accgcaatgg ggccctctatc cagcagttct gcatcaacct gcggcagctc tacggggaca      180
gccgcaagtt cctgctgctt ggtctgaggg ccttcatccc tgagaaggac agccagcact      240
tcgagaactt cctggagacc attggcgtga aggatggccg cggcatcatc actgacagct      300
ttggcaggca ccggcggggc ctgagcacca catccagttc caccaccaat gggaacaggg      360
ccacggggcag ctctgatgac cggtcggcac cctcagaggg ggatgagtgg gaccgcatga      420
tctcggacat cagcagcgac attgaggcgc tgggctgcag catggaccag gactcagcat      480
gatggacagt ggatgggggg gcacccacac cttccgcgca gtcgtcatag gccttcccag      540
aaggagctgc ccagacctgc gtgtcagccc ttggtggtgg ccaggganag gcgcccgtg      600
cagatggccc cgggcggccc aggtcctnta ctgtgaagga gcaggagct gccgaggag      660
acgagcctca gtgcgggggtg gaaggctctt tgccttgctc accagggntc agccaagccc      720
tgagtggtgt ccccgctcgg ggaggggccc gccgagcggg caggagagag cagtcctgtc      780
ggctggggccc ttggacggct gtcagttttg cacatgatgt tctattgta actntcagag      840
accttaaaaa gaagtttact gc                                             862

```

&lt;210&gt; 356

&lt;211&gt; 750

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 356

```

ccatcagtga gagcgagctg agcgccagcg ccaactgagct gctgcaggac tacatgctga      60
cgctgcgcac caagctgtca tcacaggaga tccagcagtt tgcagcactg ctgcacgagt      120
accgcaatgg ggccctctatc cagcagttct gcatcaacct gcggcagctc tacggggaca      180
gccgcaagtt cctgctgctt ggtctgaggg ccttcatccc tgagaaggac agccagcact      240
tcgagaactt cctggagacc attggcgtga aggatggccg cggcatcatc actgacagct      300
ttggcaggca ccggcggggc ctgagcacca catccagttc caccaccaat gggaacaggg      360
ccacggggcag ctctgatgac cggtcggcac cctcagaggg ggatgagtgg gaccgcatga      420
tctcggacat cagcagcgac attgaggcgc tgggctgcag catggaccag gactcagcat      480
gatggacagt ggatgggggg gcacccacac cttccgcgca gtcgtcatag gccttcccag      540
aaggagctgc ccagacctgc gtgtcagccc ttggtggtgg ccaggganag gcgcccgtg      600
agatggcccc gggcggggcc aagtcctcta ctgtgaagga acaggagct tgccgangga      660
cacgaacctc aatgccgggg tggaangctc ttggtgctgt ccaccaaggc ttagcccagc      720
ccttgcaatg ngggcccgtc tcggggaagg                                     750

```

&lt;210&gt; 357

&lt;211&gt; 725

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 357

```

gcagtaaaact tctttttaag gtctctgana gttacaatag gaacatcatg tgcaaaactg      60
acagccgtcc aaggggccag ccgacaggac tggtctctcc tgcccgtcgc gccggggcct      120
ccccgagcgg ggacacactg cagggttggt ctganccctg gtggacaagg caaagagcct      180
tccaccccgc actgaggtct gtgtccctcg gcagctccct gctccttcac agtanaggac      240
ctgggcccgc cggggccatc tgcaccgggc gcctntccct ggccaccacc aagggtgac      300
acgcaggtct gggcagctcc ttctgggaag gcctatgacg actgcgcgga aggtgtgggt      360
gcccccccat ccaactgtcca tcatgtgag tccgtgtcca tgctgcagcc cagcgcctca      420
atgtcgtctg tgatgtccga natcatgcgg tcccactcat cccctctga ggtgcccag      480
cggtcacatg agctgcccgt ggccctgttc ccattggtgg tggaaactgga tgtggtgctc      540
agggcccgcg ggtgcctgcc aaagctgtca gtgatgatgc cggggccatc cttnacgcca      600
atggtctnca ggaagtcttc gaantgctgg ctgnccttn tcagggatga anggccttan      660
accaagcagc anggaacttg cggnttntcc ccgaaaanct tgcncaggt tgatgcaaaa      720
acttc                                                         725

```



WO 99/04265

<210> 358  
 <211> 813  
 <212> DNA  
 <213> Homo Sapiens

<400> 358  
 aaggcgacag ctgcccattc cgtcactgtg aagctgcaat aggaaatgaa actgtttgca 60  
 cattatggca agaagggcgc tgttttcgac aggtgtgcag gtttcggcac atggagattg 120  
 ataaaaaacg cagtgaatt ccttgttatt gggaaaatca gccaacagga tgtcaaaaat 180  
 taaactgcgc tttccatcac aatagaggac gatatgttga tggccttttc ctacctccga 240  
 gcaaaactgt gttgccact gtgcctgagt caccagaaga ggaagtgaag gctagccaac 300  
 tttcagttca gcagaacaaa ttgtctgtcc agtccaatcc tccccctcag ctgcggagcg 360  
 ttatgaaagt agaaagtcc gaaaatgttc ctacccac gcatccacca gttgtaatta 420  
 atgctgcaga tgatgatgaa gatgatgatg atcagttttc tgaggaaagg gatgaaacca 480  
 aaacacctac cctgcaacca actcctgaag ttcacaatgg attacgagtg acttctgtcc 540  
 ggaaacctgc agtcaatata aagcaagggt aatgtttgaa ttttggaata aaaactcttg 600  
 aggaaattaa gtcaaagaaa atgaaggaaa aatctaagaa gcaagggtgag ggttcctcag 660  
 gagtttccag tcttttactt cacccttgag ccccgntcca ngtcctgaaa aagaaaatgt 720  
 caaggactgt ggtgangaca gtactntttt caccaaccaa ggagaagaac ccttggttag 780  
 atgagtctta ctgagagact ggggaaacca aaa 813

<210> 359  
 <211> 756  
 <212> DNA  
 <213> Homo Sapiens

<400> 359  
 cagcagagga gaggcagagg ataaaagagg aagagaaaaag ggcagcagag gagaggcaaa 60  
 gggccagggc agaggaggaa yagaaggcta aggtagaaga gcagaaacgt aacaagcagc 120  
 tagaagagaa aaaacgtgcc atgcaagaga caaagataaa aggggaaaag gtagaacaga 180  
 aaatagaagg gaaatgggta aatgaaaaga aagcacaaga agataaactt cagacagctg 240  
 tcctaaagaa acaggagaa gagaaggga ctaaagtga agctaaaaga gaaaagctcc 300  
 aagaagacaa gcctaccttc aaaaaagaag agatcaaaga tgaaaagatt aaaaaggaca 360  
 aagaacccaa agaagaagtt aagagcttca tggatcgaaa gaagggattt acagaagtta 420  
 agtcgcagaa tggagaattc atgaccacaa aacttaacaa tactgagaat actttcagcc 480  
 gccctggagg gagggccagc gtggacacca aggaggctga gggcgcccc caggtggaag 540  
 ccggcaaaaag gctggaggag cttcgtcgtc gtgcgggga gaccgagagc cgaagagttc 600  
 gagaagctca aacagaagca gcaggaggcg gctttggagc tggaggaact caaggaaaaa 660  
 ganggaggag agaaggaagg tcctgganga ggaagagcag aggaaggaac aggaggaaaag 720  
 ccgatcgaa aaccttcaag aggaggaaga agaaga 756

<210> 360  
 <211> 706  
 <212> DNA  
 <213> Homo Sapiens

<400> 360  
 aatttcttcc atgcttttatt ataaagngca naaacaacat gacttctgta tttaaaaaaa 60  
 caaaaactac ggttcatttt tctagatact gcacacattc cgcaggcaat tttaaacttg 120  
 gatcttctgt tgacttcana tngggttgg atcactgctc aaatacagag ttatgatgat 180  
 cagtanaaaa gtctntatct cacagcatgg gtttctttan aaacaggctc ctnggcaaaag 240  
 gcagtacttt taccatgaac atctntanac tgggattatt aaatatagng ataataata 300  
 tgggtttact gggatattga aaaataaaaag ataatgaacc caatttagta aatcaacata 360  
 aatacaaaac agagcgaatt agccctntac aactgagctc gtccctgcgtc ttgagcttgg 420  
 gttcttttctg gaactgtctc aaaccttagt gggggaagtg accttatcca canattgctt 480

ttcccagagg ttccgcttgc tggataccgt ctectggnc	caagtcanaa ggtttgggag	540
cagggtgactt gtttccatct ggggttttaa gttagccatt	cattgatgcg gctagaaacc	600
cctaccttta agccagcagt ttnccttatt tggggngcc	ctgctgcant ggggggatga	660
aaancnattt cctttntcca catactcttg aaggttgcg	tacacc	706

<210> 361  
 <211> 726  
 <212> DNA  
 <213> Homo Sapiens

<400> 361		
gccatgctac gcgcgctgag ccgcctgggc gcggggaccc	cgtgcaggcc ccggggccent	60
ctgntgctgc cagcgcgcg	ccgcaagacc cgccacgacc cgctggccaa	120
atccaagatc		
gagcgagtga acatgccgcc cgcggtggac	cctgcggagt tcttcgtgct	180
gatggagcgt		
taccagcact accgncagac cgtgcgcgcc	ctcaggatgg anttcgtgct	240
cgaggtgcat		
aggaaggtgc acgaggcccc agccggngtt	ctggcgganc gcaaggccct	300
gaaggacgcc		
gccgagcacc gcnagctgat ggccctggaac	caggcggaga accggcggt	360
gnacgagctg		
cggatagcga ggctgcggca ggaggancgg	nagcaggagc agtgncaggc	420
gttggagcan		
gcccgcagg ccgaagaggt gcangcctgg	gcgcagcgca aggagcgnga	480
antgctgcag		
ctgcagnaag aggtgaaaaa cttcatcacc	cgagagaacc tggaggcacg	540
ggtggaagca		
gcattggact cccggaagaa ctacaactgg	gccatcacca gagaggggt	600
ggtggtcagg		
ccacaacgca nggacttcta agggcccagt	aaggacagtg cccggcaggg	660
accatgatg		
tatcatggcg gaagagttgc ccttgactgg	aattaaagca attggtgtg	720
cttatgagga		
aaggtt		726

<210> 362  
 <211> 747  
 <212> DNA  
 <213> Homo Sapiens

<400> 362		
gcaggaagga attccattna ttggggatgc	attttcacaa tatatgttna	60
tnggagcgt		
ccattatcag ggaaaagtat caagggttna	taaaattttt aggaanggca	120
nattcacaga		
acatgctagt cagctngcag ttttacctcg	taaagatanc aganaattat	180
agncaaacca		
gtaaacangg aattnacttt tcaaaagatt	aaatccaaac tgancaaaat	240
tntaccctaa		
aacttactcc atccaaatat tggaaataaaa	gtcagcaggg atncattctn	300
ttctgaactt		
tanattttnt anaaaaatat gtaatagnga	tcaggaggag ctnttgttca	360
aaagtncaac		
aaagcaangt taccttacca taggccttaa	ttcaaaacttt gatccatttc	420
actccaanga		
cgggagtcaa ngctacctgg gacacttgta	ttgttaaatt ctgatttagc	480
ttatngtaaa		
cttgggccta ctttgnctatg agggtttgac	ttcngcattn ttcggggntt	540
tccttccttt		
ggcttaggtt tgctaaagct agaanattca	attgctcttt acagacttat	600
gaggaanata		
gactttgtaa cgcanatgtc acttttaaatg	ccagccctgc cctggttagc	660
ncttctggag		
gaatactgca gataagaaaa atagttattt	gggaggctcc ctcagnnggg	720
tanggaattg		
gggactaacc ncaattttng gttaaag		747

<210> 363  
 <211> 1227  
 <212> DNA  
 <213> Homo Sapiens

<400> 363		
gtgaagaccc tgagtcggtt tatttgccgg	taggagcagg ctccaacatt	60
ttgtctccat		
caaacgttga ctgggaagta gaaacagata	attctgattt accagcaggt	120
ggagacatag		
gaccaccaa tgggtgccagc aaggaaatac	cagaattgga agaagaaaa	180
acaattccta		
ccaaagagcc tgagcagata aaatcagaat	acaaggaaga aagatgcaca	240
gagaagaatg		

aagatcgta	tgactacac	atggattaca	tacttgtaaa	ccgtgaagaa	aattcacact	300
caaagccaga	gacctgtgaa	gaaagagaaa	gcatagctga	attagaattg	tatgtagggt	360
ccaaagaaac	agggctgcag	ggaactcagt	tagcaagctt	cccagacaca	tgtagccag	420
cctccttaaa	tgaagaaaa	ggtctctctg	cagagaaaat	gtcttctaaa	ggcgatacga	480
gatcatcttt	tgaagccct	gcacaagacc	agagttggat	gttcttgggc	catagtgagg	540
ttggtgatcc	atcactggat	gccagggact	cagggcctgg	gtggtctggc	aagactgtgg	600
agccgtttct	tgaactcggc	ttgggtgagg	gtccccagct	gcagattctg	gaagaaatga	660
agcctctaga	atcttttagca	ctagagggaag	cctctggtcc	agtcagccaa	tcacagaaga	720
gtaagagccg	aggcagggct	ggcccggatg	cagttaccca	tgacagtga	tgggaaatgc	780
tttcaccaca	gcctgttcag	aaaaacatga	tccctgacac	ggaaatggag	gaggagacag	840
agttccttga	gctcgggaacc	aggatatcaa	gaccaaattg	actactgtca	gaggatgtag	900
gaatggacat	cccctttgaa	gagggcgtgc	tgagtccag	tgctgcagac	atgaggcctg	960
aacctcctaa	ttctctggat	cttaatgaca	ctcatcctcg	gagaatcaag	ctcacagccc	1020
caaatatcaa	tctttctctg	gaccaaagtg	aaggatctat	tctctctgat	gataactttg	1080
gacagtccag	atgaaattga	catcaatgtg	gatgaacttg	ataccccga	tgaagcagat	1140
tcttttgagt	accctggccc	atgaagaatc	ccacagccac	aaagattctg	gccaagaag	1200
tcagagtcta	tttcnggaat	ataccgg				1227

&lt;210&gt; 364

&lt;211&gt; 831

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

ctgacatcta	caccgaggtc	cgcgagctgg	tgagcctcaa	gcaggagcag	caggctttca	60
aggaggcggc	ccgacacgga	gcggctcgcc	ctgcaggccc	tcacggagaa	gcttctcagg	120
tctgaggagt	ccgtctcccg	cctcccggag	gagatccgga	gactggagga	agagctccgc	180
cagctgaagt	ccgattccca	cgggcccgaag	gaggacggag	gcttcagaca	ctcggaagcc	240
tttgaggcac	tccagcaaaa	gagtcaggga	ctggactcca	ggctccagca	cgtggaggat	300
gggtgtctct	ccatgcagg	ggcttctg	cgccagaccg	agagcctgga	gtccctcctg	360
tccaagagcc	aggagcacga	gcagcgctg	gccgcctgc	aggggcccct	ggaaggcctc	420
gggtcctcag	aggcagacca	ggatggcctg	gccagcacgg	tgaggagcct	gggcgagacc	480
cagctgggtg	tctacggtga	cgtggaggag	ctgaagagga	gtgtggcgga	gtcccccagc	540
acccgtggaa	tactccaga	aggtgcagga	acaggtgcac	acgctgtcta	gtcaggacca	600
agcccaggcc	cgcgctctg	cttctcagga	ctttctggac	agactttctt	ctctagacaa	660
cctgaaagcc	tcagtcaggc	cagtggaagc	cggacttgaa	aatgctcaag	aactgctgtg	720
gacaagttgg	gtgcataact	cgtcaaaaat	tagaaaacca	cgagnacaat	tttggaaatca	780
agcccanggt	tactagatga	ccttggggaa	tgatcnggat	aggttgtttg	t	831

&lt;210&gt; 365

&lt;211&gt; 785

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

acttgaaatc	tgccagccag	acaggatttc	tgaggttaat	ctgcttctgt	taatcctcaa	60
tttaagcctt	tatcattttt	ctctgactag	agacatccat	gaaaagccac	ctgttattca	120
caggggctgc	gcttcaggaa	accaaccaaa	tgagaagca	gagaacttaa	atattgtaaa	180
taagttaact	gggcatgaaa	atacaatgcc	ttggtgttca	ggtggtgaca	actgctcttt	240
aagaggggac	aagaaattgg	ggggtagggg	acacatggga	aaaaaccaca	catttttttg	300
tcattgagaaa	ttggacttta	aatccgcgcc	ctgcacacgc	aattcattta	gaccttttcg	360
tgaatcttct	ccactttcac	aaacaacctt	tccagatcat	tcctcaggtc	atctagtaaa	420
cccttggtg	attccagatt	gttctcggtg	gtttctatct	tgaccgagta	tgcaacaaaa	480
ctgtccacag	cagtcctgag	cattttcaag	tccgcctcca	cttggctgac	tgaggctttc	540
aggttgtcta	gagaagaaa	tctgtccagg	aagtcctgag	gaggcagacg	ggcgccctgg	600

gcttggtcct gactgagcag cgtgtgcacc tgctcctgcc ctttctggga gtgattccac 660  
 ggtgctgggg agctngccca cacttctctt tcagcttctt ccacgtcacc cgtaaaagca 720  
 cccagctggg tctcgnccaa gcttctntacc gtgctgggcc aggcccatcc tggntctggct 780  
 tttga 785

<210> 366  
 <211> 816  
 <212> DNA  
 <213> Homo Sapiens

<400> 366  
 gtcagccagc ctccttaaat gaaagaaaag gtctctctgc agagaaaatg tcttctaaag 60  
 gcgatacgag atcatctttt gaaagccctg cacaagacca gagttggatg ttcttggggc 120  
 atagtggagt tggatgacca tcaactggatg ccagggactc agggcctggg tggctctggca 180  
 agactgtgga gccgttctct gaactcggct tgggtgaggg tccccagctg cagattctgg 240  
 aagaaatgaa gcctctagaa tctttagcac tagaggaagc ctctgggtcca gtcagccaat 300  
 cacagaagag taagagccga ggcagggctg gccgggatgc agttaaccat gacagtgaat 360  
 gggaaatgct ttcaccacag cctgttcaga aaaacatgat ccctgacacg gaaatggagg 420  
 aggagacaga gtcccttgag ctcggaacca ggatatcaag accaaatgga ctactgtcag 480  
 aggatgtagg aatggacatc ccctttgaag agggcgtgct gactccagc gctgcagaca 540  
 tgaggcctga acctccta tctctggatc ttaatgacac tcactcctcg agaatacagc 600  
 tcacagcccc aaatatcaat ctttctctgg accaaagtga aggatctatt ctctctgatg 660  
 ataactttgg acagtccaga tgaaattgac atcaatgtgg atgaacttga tcccccgat 720  
 gaagcagatt cttttgagta ccctggccca tgaagaatcc cacagccaca aagattctgg 780  
 cccaagaagt cagagtctat ttcnggaata taccgg 816

<210> 367  
 <211> 803  
 <212> DNA  
 <213> Homo Sapiens

<400> 367  
 aaaagaacca tggaagttct cctgaacagg tagtgaggcc aaaagttaga aaactgataa 60  
 gttcaagcca ggtggaccaa gaaacagggt ttaataggca tgaggcgaaa caaagaagtg 120  
 ttcaaaagatg gagagaggct ttggaagttg aggaaagtgg ctcatatgac ctcttaataa 180  
 aatgtgaaga atatgatgga gagcatgact gtatgttctt ggatccacca tactcaagag 240  
 ttattacaca aagggaaaaca gaaaataacc aaatgacatc agaaagtgga gccacagcag 300  
 gaaggcaaga agtggataac accttttggga atggctgtgg agattattac caactctatg 360  
 acaaagatga agatagttct gaatgcagtg atggggaatg gtctgcttct ttgcctcatc 420  
 gatcttctgg tacagaaaaa gatcaatcct caagtgtatg aagctgggag actctgccag 480  
 gaaaagatga gaatgaacct gagctacaaa gtgatagcag tggccctgaa gaagaaaacc 540  
 aagaattatc tcttcaggaa ggggaacaga catccttggga agagggagaa attccttggg 600  
 tacagtacaa tgaagtcaat gaaagcagca gtgatgaagg gaaatgaacc tgccaatgaa 660  
 ttgacacagc cagctttcat gttggatggg aacaataacc tggangatga cttccgtgtg 720  
 aagtgaagac ttagatgtgg attggagcct attttgatgg ctttgcaaat gggcctagga 780  
 gttgctggaa gctttttcat aag 803

<210> 368  
 <211> 809  
 <212> DNA  
 <213> Homo Sapiens

<400> 368  
 attagaaatg accaccgagt atattctgtt tattgtttat gatttacaca gaaaatgatg 60  
 ggctgggggt atagaacaat aaaccaacca ttacatttag acctgggctt ttgaaaaact 120

tgcatccat	tttaacaatt	cgtatgtatc	taacaaatac	ataaatccag	atcacaaata	180
atcttaagag	ttaaacaatt	aagaaacaca	aagaatacca	catagatcta	cctttaaata	240
tcagcattca	tattataaga	aataagaaaa	tgttaaaaaa	ataaaattag	gttaagtcac	300
aacataaaat	agagaaataa	gataaatgct	attttattaa	tattcatact	tattttcta	360
ttaccttcat	atagtcttaa	ctttttcaaa	aggatccaag	atatgatcaa	ataatatttt	420
agtatctgaa	cttgccagcc	ttagcttata	ccagagcttg	ttaccatgaa	aatcctaaaa	480
cctcaatttt	ctttttcttt	tttaaaattt	aagccaactc	ttattcaact	tttcttcttc	540
acagcagctg	tttatagata	gtagggagcc	aagaatgaag	gacagtaaca	gatggaaagc	600
aaaaagtaca	acagctatct	taagttcagc	tctcaacatt	gctggttgag	tttggaaccc	660
aaaaccctct	taacaactgg	cagataatag	cttaaactct	tacaggccaa	ggaagaaata	720
ttttcttttg	ggacagctgn	tatctagaag	aaaaccang	ggccctttaa	tataggccta	780
aaatattaan	ggngggcttt	aatttttagg				809

&lt;210&gt; 369

&lt;211&gt; 826

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 369

gtgaagacc	tgagtcggt	tatttgccgg	taggagcagg	ctccaacatt	ttgtctccat	60
caaacgttga	ctgggaagta	gaaacagata	attctgattt	accagcagg	ggagacatag	120
gaccaccaa	tggtgccagc	aaggaaatac	cagaattgga	agaagaaaaa	acaattccta	180
ccaaagagcc	tgagcagata	aaatcagaat	acaaggaaga	aagatgcaca	gagaagaatg	240
aagatcgta	tgactacac	atggattaca	tacttgtaaa	cgtgaagaa	aattcacact	300
caaagccaga	gacctgtgaa	gaaagagaaa	gcatagctga	attagaattg	tatgtagggt	360
ccaaagaaac	agggctgcag	ggaactcagt	tagcaagctt	cccagacaca	tgtagccag	420
cctccttaaa	tgaaagaaaa	ggtctctctg	cagagaaaaa	gtcttctaaa	ggcgatacga	480
gatcatcttt	tgaaagccct	gcacaagacc	agagttggat	gttcttgggc	catagtggag	540
ttggtgatcc	atcactggat	gccagggact	cagggcctgg	gtggtctggc	aagactgtgg	600
agcgttctc	tgaactcggc	ttgggtgagg	gtccccagct	gcagattctg	gaagaaatga	660
acctctagaa	tcttttagcac	tagangaagc	ctntggtcca	gtcagcccat	cacaggaaga	720
gttagaacc	gaggcanggc	tgggcccggg	tgcagtaccc	cntgacagt	gaatgggnaa	780
tgcttttanc	cacagcctgt	tcagaaaaac	atgatccttg	ccccgg		826

&lt;210&gt; 370

&lt;211&gt; 783

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 370

gcagaatcaa	tttttatttc	tgaattatac	agtgaggcta	tatagatata	ttgtgtcatt	60
aaagactttt	atattattaa	tctacattat	ggagaattta	tttaccaaaa	cgaagtctaa	120
cagacacttt	attctgagca	atccaatgca	tgatagaaaa	accttttagat	atataaaaga	180
ttaattttgtg	cacatctaaa	tgtttctaag	ggaacaaact	actgaggcat	tgtgataaga	240
cgagagttgc	aaacatagta	ccataactga	atatttaaaa	ttacatctta	acaaaggcta	300
ggagtagtga	cttcctcaca	cacctcagag	aatgtcttag	agagtaaccc	catagaacat	360
tgtatggctt	caacagaaac	ttcaggattt	tcttccacac	tgagctactg	ccctcaaaca	420
aacttttctca	ctccttgaca	ctatcttctg	tgcaaatctt	tggtctttct	cttaatcaag	480
gagcttttag	aaacaatgct	tttgccccaa	tgaccccttg	gttcccttaa	ctacagatct	540
ataggagaaa	tgcaaagcag	ttcccagaag	tcagaaccaa	agcaagaatg	ttcagagtgc	600
aagagctaga	gagctaaatc	atgtgaatgg	ttacctctgn	ctacctatct	gcttanggat	660
tatttttctta	nggattcatc	taggattcta	tttaccttgg	gggtgaaatg	gacatggtag	720
cttttcttta	gccccatgcc	aattaaaatt	naatttgggc	ntttaaagaa	taattaaaaa	780
tg						783

<210> 371  
 <211> 793  
 <212> DNA  
 <213> Homo Sapiens

<400> 371  
 ccacactgca ggatctgtct tcttctaaag aaccttctaa ttcctaaac ttacctcaca 60  
 gtaatgagct gtgttcatcc cttgtgcac ccgaattgag tgaggtcagt tctaactgtg 120  
 caccaagcat cctccagta atgtcaagac ctgttagctc ttcctccatt tccactccct 180  
 tgccccaaa tcaaataact gtatttgtca cttccaatcc catcacaact tcagctaaca 240  
 catcagcagc ttgccaact cacttgagct ctgcattgat gtcaacagtt gtcacaatgc 300  
 ccaatgcggg tagcaagggt atgggttctg agggacagtc agctgctcag tctaattgcc 360  
 ggctcagtt cattacacct gtctttatca attcatcctc aataattcag gttatgaaag 420  
 gatcacagcc aagcacaatt cctgcagccc cactgacaac caactctggc ctgatgcctc 480  
 cctctgttgc agttgttggc cctttacaca tacctcagaa cataaaattt tcttctgctc 540  
 ctgtaccgcc taatgccctc tccagtagtc ctgctccaaa catccagaca ggtcgacctt 600  
 tggctccttag ctacagagcc acccctgttc agcttctctc ccttctttna cgtcttctnc 660  
 agttgccctt ctnatccctt gtgcaacaag tgaagaatt gaatncagat gangctagcc 720  
 ctnangtgaa caccttaaca gatcagacac ttttctctt tncagtcac cccaatgggt 780  
 tcttccctt tga 793

<210> 372  
 <211> 804  
 <212> DNA  
 <213> Homo Sapiens

<400> 372  
 cacattgtac aaatccttag attctcttta ttcactggtc catttctaca acaaatacat 60  
 ccaaaacact atataataaa attatttaca acatttccaa atgagaagat tgcttttgcc 120  
 cccactactg ctattcacac acagtacttc cacggcaca tacattagga gatctaaaaa 180  
 tgctcaccct gtactctagg ctgcttagga aatgtgaaaa ctagtaacat ttataatggc 240  
 attagctcct ttcaatacaa gacaacattt tagaaacctt gaacttcaac tcgcaacacc 300  
 aaaagggtc aacagtctg ctttcccat tgcactttat gaaacagggt gcagggacta 360  
 ggaaaagggt cacattatta aaattactaa ctgtacagaa attgatttaa aaaagtcaca 420  
 gctcaaaatt gctctttgta aaagtcacac acatttccaa gtatcaagtc gcagtcctgc 480  
 ttgtttactt ggattttctt cgttggatt gcaccgact ggttatgtct ttagtagagc 540  
 tggaggctga agcaggctga gaagatcgtt tacgatgtcc attttccaca ctttcagagg 600  
 ccacagttgg ctcttcagtt cgggagtttc ttccggcctgg gatttggact tttcaactat 660  
 ctctttgggc tcaactgctt gtccagagac tatggcagca tttacctccg ctttgggctg 720  
 gcaacagang cctgcaatgc tnggggtga agttcctttt gagactaaat tctggcgacn 780  
 gggctttgct gggggtaaaag ttct 804

<210> 373  
 <211> 792  
 <212> DNA  
 <213> Homo Sapiens

<400> 373  
 gccggcgcc cgcgcccgc cgcgctgcc cccagctcga ggaggacatc gcggccaagg 60  
 agaagttgct gcgggtgtcg gaggacgagc gggaccgggt gctggaggag ctgcacaagg 120  
 cggaggacag cctcctggcc gccgaagagg ccgccgcaa ggctgaagcc gacgtagctt 180  
 ctctgaacag acgcatccag ctggttgagg aagagttgga tcgtgcccag gagcgtctgg 240  
 caacagcttt gcagaagctg gaggaagctg agaaggcagc agatgagagt gagagaggca 300  
 tgaaagtcac tgagagtcga gcccataaag atgaagaaaa aatggaaatt caggagatcc 360  
 aactgaaaga ggcaaagcac attgctgaag atgccgaccg caaatatgaa gaggtggccc 420

gtaagctggt catcattgag agcgacctgg aacgtgcaga ggagcgggct gagctctcag	480
aaggccaagt cgcacagctg gaagaacaat taagaataat ggatcagacc ttgaaagcat	540
taatggctgc agaggataag tactcgcaga aggaagacag atatgaggaa gagatcaagg	600
tcctttccga caagctgaag gaggtcgaga ctcgggtgga gttttgcgga aaaggtcagt	660
aactaaantt ggagaaaaag catttgatga cttagaagaa gaaagtggct tcatgccaa	720
agaagaaan cttatatgca tcaanatgct ggatcagact ttactggagt taaaccacat	780
gtgaaaaact tc	792

&lt;210&gt; 374

&lt;211&gt; 745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 374

agccgataac agtagaactc tgaacgtgga ttccactgca atgacactac ctatgtctga	60
tccaactgca tggggccacag caatgaataa tcttggaatg gcaccgctgg gaattgccgg	120
acaaccaatt ttacctgact ttgatcctgc tcttggaatg atgactggaa ttccaccaat	180
aactccaatg atgcctgggt tgggaatagt acctccacca attcctccag atatgccagt	240
agtaaaagag atcatacact gtaaaagctg cacgctcttc cctccaaatc caaatctccc	300
acctcctgca acccgagaaa gaccaccagg atgcaaaaca gtattttgtgg gtggtctgcc	360
tgaaaatggg acagagcaaa tcattgtgga agttttcgag cagtgtggag agatcattgc	420
cattcgcaag agcaagaaga acttctgcca cattcgcttt gctgaggagt acatggtgga	480
caaagccctg tatctgtctg gttaccgcat tcgctgggc tctagtactg acaagaagga	540
cacaggcaga ctccacgttg atttcgcaca ggctcgagat gacctgtatg agtgggagtg	600
taaacagcgt atgctagcca gagaggagcg ccatcgtaga agaatggaag aagaaagatt	660
gcgtncacca tnttcacccc cagtgggtcac tatttagatc atgaatgcag cattggtgct	720
gaaaaataaa aaggaggatt ccaaa	745

&lt;210&gt; 375

&lt;211&gt; 734

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 375

gaggataaaa aaggaatatt tatcttttaa aaatacaact ttgaacacta ctggcatctc	60
atttacaag tatttttgtg aaatactctc cattggcttt gcttgctcag tacattcttt	120
tatcttcaat tgagactcaa gggagggat gcttgcatTA ttataaatac cacaaccacc	180
accacacaca ataaagacca tctctgcctc aggcattcg ccccaaacct ccatcctctc	240
tgtttacttt ccaccaagca gaagtttctg aatgggtccac tcacatgctg ccattgcat	300
ttgccgatgg gcaactacaa ggtgtctctg gcaattcgca ctccagggtg agctgaccta	360
tttgtagaaa gcctcacaaa ccctagctca ttatttattc attgattcat tactattaat	420
acttatatca agtctttgca aacattcagc atgaagtaaa catagtattt acagcagtac	480
tcggtttgca attcaacaca ctgacaacag aagcaaagg accaacagac tgtaagaagg	540
ccagagggga aagaatatta atataaatcc cttctgccac tgtgtgccgt gccgtgtgtg	600
tgtttgtgct tgtgtgcccc cacatgagca tattttaatt cacagaaaaa ctgaaacatg	660
ccctccttta aaagcagact atttacaagt gattctgaat agcatgaaca catgccagn	720
atactggaaa cttg	734

&lt;210&gt; 376

&lt;211&gt; 822

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 376

ggctgatcag tgttctagaa cagatcagac attttgaat gatgcctgaa ataaacacta	60
--	----

accacctcga caagcaacag gttcaactcc tggcagagat gtgtatcctt attgatgaaa	120
atgacaataa aattggagct gagaccaaga agaattgtca cctgaacgag aacattgaga	180
aaggattatt gcatcgagct tttagtgtct tcttattcaa caccgaaaat aagcttctgc	240
tacagcaaaag atcagatgct aagattacct ttccagggtt ttttacgaat acgtgttgta	300
gtcatccatt aagcaatcca gccgagcttg aggaaagtga cgcccttga gtgaggcgag	360
cagcacagag acggctgaaa gctgagctag gaattccctt ggaagagggt cctccagaag	420
aaattaatta tttaacacga attcactaca aagctcagtc tgatggatc tgggggtgaac	480
atgaaattga ttacattttg ttggtgagga agaattgtac tttgaatcca gatcccaatg	540
agattaaaag ctattgttat gtgtcaaaag aagaactaaa agaacttctg aaaaaagcag	600
cccagtggtg aaattaagat aacgccatgg tttaaaatta ttgcagcgac ttttctcttt	660
aaatgggtggg ataacttaaa tcatttgaat caagtttggg gacccatgag aaaatatacn	720
gaatggggaa tatgtaggta aatggattac ccgaaaaaan ttatctgntt aacaaaactta	780
gaaaggcttt ttncctttta aattaagttc tatcattaaa tt	822

&lt;210&gt; 377

&lt;211&gt; 812

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 377

gcaagaaata aattttttatt tttcttcatt atcatacagc atttaagaat aataaatctg	60
tcttgagggt tcaaatctga gatattctatg gcaagtttat aaaaagtaca ttgatcaagg	120
tacaattttt aacattaata tacacattcc ataattctcat ctattttaaca ttaacacagg	180
cctttgttgt tgtatttttt ttctccctac aatatttcct gactctgtag gacagtgggc	240
ctcagttggg ggttgactct gtcccctagg ggcatctggc aacatccggc ataactgtgg	300
gtgtcacatg agagggacgc tgcaccat cctgcaatgc acagcacaga cccaccaca	360
ggggttttat ccagcccaaa tgtcaacagt gtcaagttta agcaactctt accgagtggg	420
actcaattcc cattttatga acacctctgt gctcactgta attctgaaaa cacagacttt	480
gctaactggg aaatactatt tacaagaaga ttcaacctaa tcaatatcac ttatcaaaag	540
cagtggctga ctgtaagtat caacatgttt ccagaatgaa taaaccacac aatcaactca	600
gaatgataca aattagggtc catatcattt aatttccctt gaacctgctc tgctagggtta	660
atctgctaata atgaaagtta attaagactg gttttgaagg accgaggaca atagtttctt	720
ttgcacaatt ttctgaacta tgagaaaaat ttaaaggatc cntaaagcnc ctggcaaaaa	780
gccaaaggccc tttgcaaagg gcttccggaa aa	812

&lt;210&gt; 378

&lt;211&gt; 870

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 378

aaaatttaag ccaactctta ttcaactttt cttcttcaca gcagctgttt atagatagta	60
gggagccaag aatgaaggac agtaacagat ggaaagcaaa aagtacaaca gctatcttaa	120
gttcagctct caacattgct ggttgagttt ggaaccaaaa cctcttaaca actggcagat	180
aatagctaaa tcttaacaga caaagaagaa atattttctt tgggacagct gctatctaga	240
agaaaaccaa ggtcccttaa tatagtctaa atataatgtg tggcttatta tagagaaatc	300
tttagcaacg taagtttaac cagtaagtgt cacaactgat caacagtact taaaaggaaa	360
caaacaaaaa tcacactagc cacaatttcc caccatatac acatgaaatt aattttaatc	420
tgttttgact ccttgacact aactgatcat taatgaaata tgatatggaa agatcacaga	480
gtagaaaaca agcaaagatt agttttatata acagtgacta tatacatcag agggaaaaaca	540
tgctagctaa tgcaacatta aggcctgaat gtaagcattt cccaagtcac agaagcccca	600
aagaactcct aaattacaaa ttcattcacat tacatgcatg caatggtcac ttttggttta	660
cccataaaaag gatacncagt attttgctgn aaataccagg accacattta caatatatgc	720
aaaaaattag aatgcagnng taagntcctt anatttaagc cctcatatgn gncaacaggg	780
gaaaattcca tttattttta agaaaggaaa aanggagacn gggatataaa tactcggaga	840



aattccccga attaagaagn aacctctgca

870

&lt;210&gt; 379

&lt;211&gt; 837

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 379

gaggagaggt	caaccgtcgt	agcgccaata	acttctactc	catgatccag	tcggccaaca	60
gccatgtccg	ccgcctgggtg	aacgagaaag	ctgcccata	gaaagatatg	gaagaagcaa	120
aggagaagtt	caagcaggcc	ctttctggaa	ttctcattca	atgtgagcag	atagtggctg	180
tgtaccattc	cgctccaag	cagaaggcat	gggaccactt	cacaaaagcc	cagcggaa	240
acatcagcgt	gtggtgcaaa	caagctgagg	aaattcgcaa	cattcataat	gatgaattaa	300
tgggaatcag	gcgagaagaa	gaaatggaaa	tgtctgatga	tgaatataga	gaaatgacag	360
aaacaaaaga	aactgaggaa	tcagccttag	tatcacaggc	agaagctctg	aaggaagaaa	420
atgacagcct	ccgttggcag	ctcgatgcct	accggaatga	agtagaactg	ctcaagcaag	480
aacaaggcaa	agtcacacaga	gaagatgacc	ctaacaaaga	acagcagctg	aaactcctgc	540
aacaagccct	gcaaggaatg	caacagcatc	tactcaaagt	ccaagaggaa	tacaaaaaga	600
aagaagctga	acttgaaaaa	ctcaaagatg	acaagttaca	ggtggaaaaa	atgttggaaa	660
atccttaaaga	aaaggaaaagc	tgtgcttcta	ngctgtgtgc	ctcaaaccag	gatagcgaat	720
accctnttga	gaaagaccat	gaacagcagt	cctatcaaaa	tcttgaaccg	tgaagcactg	780
gtagtgagg	gattatcttc	cacanttctc	tcattgtcac	cccatttga	gccagcc	837

&lt;210&gt; 380

&lt;211&gt; 793

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 380

gttgcttagt	ttcaggaggt	ctctacatat	tctggatatt	aattcctttt	catatatatg	60
atttgcaaat	atcttctccc	attctgtggg	gtttttttac	ttgttgata	ttgtcttttg	120
agacacaatt	ttttttaatt	ttcatgaagt	ccaatttgte	tatttttttt	cttttgttgc	180
ctattttgtg	tcctcctcaa	gaaaccatta	ccaaatccag	tgttttgaag	ctttcccat	240
atgttttatt	ctaagagcct	tatgggttta	ggccttacat	ttaggccttt	gatccatttt	300
gagttaattt	ttgtatatgg	tgtaggttaa	ggacccaact	tccttggttg	gcattgtggat	360
atccaatttt	cctaccacca	tttgtttgaa	aagattgtcc	tttcccat	gaatggtctt	420
ggtagccttg	tcaaaagtca	actgatcata	catcttattt	atttccggcc	tccctaattc	480
attctatcag	actatatgtc	tgtctttatg	ccagtaccac	attgttttga	ttactgttag	540
tccatcttta	ttatataaaa	tcattgattac	aagctcatac	tataatatta	tattttatac	600
ttttccaaat	cttccatagc	attgngttct	tcttccacta	aaaagcagac	cgttttagagg	660
tataataagt	agcctgaagt	gggcaagtaa	tgaacaaaac	ttgagaatta	cataaccttn	720
cagctataga	gttcataatg	gcccgaagag	gtaaagactg	caggncgctt	aattncagg	780
cttttcacca	ggc					793

&lt;210&gt; 381

&lt;211&gt; 807

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 381

agaacaccct	cttagatgtc	ttgttctgtg	tgcccaagta	catgccggaa	tgtggagaag	60
aaatgggttc	tctctagtaa	accagattta	ttactaccat	aatgtgaaat	gcagacgtga	120
gatgtttgac	aaggatgtag	taatgcttca	gacaggtgtc	tccatgatgg	atccaaatca	180
tttctgatg	atcatgtcga	gccgctttga	actttatcag	atcttcagta	ctccagacta	240
tggaaaaaga	tttagttctg	agattaccca	taaggatgtt	gttcagcaga	acaatactct	300

aatagaagaa atgctatacc tcattataat gcttgttggga gagagattta gtcctggagt	360
tggaacaggta aatgctacag atgaaatcaa gcgagagatt atccatcagt tgagtatcaa	420
gcctatggct catagtgaat tggtaaagtc tttacctgaa gatgagaaca aggagactgg	480
catggagagt gtaatcgaag cagttgccca tttcaagaaa cctggattaa caggacgagg	540
catgtatgaa ctgaaaccag aatgtgccaa agagttcaac ttgnatttct atcacttttc	600
aagggcagaa cagtccaagg cagaagaagc gcaacggaaa ttgaaaagac naaatagaga	660
agatacagca cttccacett cgggggttgn ctncattctg gcctctggtt gcaagcctgg	720
gtaacanttt gcagtcagat gtcatggtgn gcatcatggg gaaccaattn tgcaatgggc	780
tgtggaacca taaanggata tgcctgg	807

&lt;210&gt; 382

&lt;211&gt; 800

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 382

aagtttaaat aaagaattta tttccaaatt cagcagaact tctttctttc ttaaaaagcc	60
aactgggtta aaaaaatcca agtttgtgtt ttttgggtgtt gcaataatta taaatgttgc	120
cagtcaatgc caaccagtgt ctgattggct tcctgtgcat gtccaatttc ctctgtgaca	180
ctgtgttggg gccagagctt ctgaaatcttc ttgaatcgct ctttgcataa atgtaaagga	240
tttcccgcgc tgagtccttg gtcggtctcc ccatagtcat caaggtaagg aggagaataa	300
aaacagcctt tggttttgccc agctaaaaat agcacctgac attcccgtac tctcaggaag	360
atgccactc cagagccaca ggagtaggtg tgagctgtgc aggctcctac atcctcccct	420
tccagttcag tctggcagca gtaactctgg gagcacagca gagatccgca cacaaggcac	480
agagttgggg ctctgctctt atcaccacct gatttcgggc acgagaaatt ggatgcttga	540
ttaatgaggc tgctgtaatc ctctggaagg tttattaatt tgttaagatt ctcttgata	600
tcttatagca tctcttttca ccttctagaa atcttttaac tttactggt accggcacca	660
acntttcaat cagggaattc antatctcac tattttctt gaaaaaggca aatggaggtt	720
ggtttggtta agggaaagga aaggcttccn taaaagggtt aaaaaagggt tngttncag	780
gnaaccttgn aatgtcgggt	800

&lt;210&gt; 383

&lt;211&gt; 1203

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 383

ctgacatcta caccgaggtc cgcgagctgg tgagcctcaa gcaggagcag caggctttca	60
aggaggcggc ccgacacgga gcggctcgcc ctgcaggccc tcacggagaa gcttctcagg	120
tctgaggagt ccgtctcccg cctcccggag gagatccgga gactggagga agagctccgc	180
cagctgaagt ccgattccca cgggccgaag gaggacggag gcttcagaca ctcggaagcc	240
tttgaggcac tccagcaaaa gagtccagga ctggactcca ggctccagca cgtggaggat	300
ggggtgctct ccatgcaggt ggcttctgct cgccagaccg agagcctgga gtccctcctg	360
tccaagagcc aggagcacga gcagcgctg gccgcctgc aggggcgcct ggaaggcctc	420
gggtcctcag aggcagacca ggtggcctg gccagcacgg tgaggagcct gggcgagacc	480
cagctggtgc tctacggtga cgtggaggag ctgaagagga gtgtgggcga gctcccagc	540
acccgtggaa tcaactccaga aggtgcagga gcaggtgcac acgctgctca gtcaggacca	600
agcccaggcc gcccgctctgc ctctcagga ctctctggac agactttctt ctctagacaa	660
cctgaaaagg tcagtcagcc aagtggaggc ggacttgaat atgctcagga ctgctgtgga	720
cagtttgggt gcatactcg tcaaaataga aaccaacgag aacaatctgg aatcagccaa	780
gggtttacta gatgacctga ggaatgatct ggataggttg tttgtgaaag tggagaagat	840
tcacgaaaag gtctaaatga attgcgtgtg cagggcgctg atttaaagtc caatttctca	900
tgacaaaaaa atgtgtggtt ttttcccatg tgctccctac cccccaattt cttgtccct	960
cttaaagagc agttgtcacc acctgaacac caaggcattg tattttcatg cccagttaac	1020
ttatttacaa tatttaagtt ctctgcttct gcatttggtt gggttctctga agcgcagccc	1080

WO 99/04265

ctgtgaataa caggtggctt ttcattgatg tctctagtca gagaaaaatg ataaaggctt 1140  
 aaattgagga ttaacagaag cagattaacc tcagaaatcc tgtctggctg gcagatttca 1200  
 agt 1203

<210> 384  
 <211> 2651  
 <212> DNA  
 <213> Homo Sapiens

<400> 384  
 cctggctgca gactacccca ccagcgcggt tcatagtggc gtcattgcacg cagactcctg 60  
 caagttcccc taagttctta gaggactgct ttgccttttg atctgagagt tgcaaagttc 120  
 cataaagaat ggcccttggt gataagcaca aagtcaagag acagcgattg gacagaattt 180  
 gtgaagggtat ccgccccag atcatgaacg gccccttgca cccccgcccc ctgggtggcgc 240  
 tgctggacgg ccgcgactgc actgtggaga tgcccatcct gaaggacctg gccactgtgg 300  
 cctttctgtga ccgcgactgc acgcaggaaa tccacgagaa gggttctaaac gaagccgtgg 360  
 ggcctcatgat gtaccacacc atcaccctca ccaggaggga cctggagaag ttcaaggccc 420  
 tgagagtgat cgtgcggata ggcagtggct atgacaacgt ggacatcaag gctgccggcg 480  
 agctcggaaat tgccgtgtgc aacatcccgt ctgcagccgt ggaagagaca gcggactcta 540  
 ccatctgccca catcctcaac ctgtaccgga ggaacacgtg gctgtaccag gactgcgggg 600  
 aaggcacggg ggttcagagc gtggagcaga tccgcgaggt ggccctcgga gcggcccgca 660  
 tccgtgggga gacgtgggc ctcatgtggc ttggtcgac ggggcaggcg gttgcagttc 720  
 gagccaaggc ctttgatttc agcgtcatat tttatgacct ctacttgca gatgggatcg 780  
 agcgggtccct ggcgtgcag aggggtctaca ccctgcagga tttgctgtat cagagcgact 840  
 gcgtctcctt gactgcaat ctcaacgaac ataaccacca cctcatcaat gactttacca 900  
 taaagcagat gaggcaggga gcattccttg tgaacgcagc ccgtggcggc ctgggtggacg 960  
 agaaagcctt agcacaagcc ctcaaggagg gcaggatacg aggggcagcc ctgcagctgc 1020  
 atgagtcaga gccctttagc tttgctcagg gtccgttgaa agatgcaccg aatcttatct 1080  
 gcactcctca cactgcctgg tacagcaagc aggcgtcact ggagatgagg gaggcagctg 1140  
 ccactgagat ccgcccagcc atcacagtc acatcccaga aagcttaaga aactgtgtga 1200  
 acaaggaatt atctgtcaca tcagcgcctt ggtcagtaat agaccagca gcaattcatc 1260  
 ctgagctcaa tgggtccaca tacagatc cgccaggcat cgtgggcgtg gctccaggag 1320  
 gacttcctgc agccatggaa gggatcatcc cctgnaaggc atcccagtg ctcaacaacc 1380  
 tcccagacgt ggcacatcct ttcccaggg cctnttccca accagccac aaaacacggg 1440  
 gccaatcgag agcaccacca cgagcaatag cagagaatgc cagaaggtaa tcaactcagat 1500  
 acacttgagg ccaagagnca gtgaaaaata gatgaactaa gagaaaaaga atcggtatgt 1560  
 ctttgtaact tgattctgga catatgcac attgatgttg cagtgttgaa actacaagag 1620  
 ctagaaaact gaagatgtcg tctgcttacg gaagcgtga aagactagga tgtgatttat 1680  
 taacgaccaa cttctgttat tgtgtgttaa gtttttcac tgtgcatcaa atcacaacaa 1740  
 gaataaatag agcttttttc tttatcagtc ccttgggcac agcaggctct gaacacctg 1800  
 ctctacaatg ttgcatcaag agttcaaca acaaaataaa aaatattaag aggaatccc 1860  
 catcctgtga cttgagtcct ttaagtctac aggggctggg gacctctttt tgctaatagg 1920  
 aaaatcacat tactacaaaa tggggagaaa actgtttgcc tgggttagac acctgcacgc 1980  
 ataggattga agacagtaca ggctgctgta cagagaagcg cctctcacat ctgaaactgca 2040  
 tactgagcgg gcaagtcggg tgtaagttca gtaaaaccc ctgatgatgc aaaaaaaaaa 2100  
 aaaaagtatt aagtttcaca agctgtttgt actcaaatat attttctcag tttcagatcc 2160  
 tctgctatct tattgagtgg aaagtcttga gctaaaaggg ttcaagaaga ataagtgtgc 2220  
 atttccttat gtctcaggaa acacttttta tggtaacttg tcagattgtc tatgaacaaa 2280  
 cccacttttt tagacattga taaagtcttc ttcacgtgat attttataca agaacttcc 2340  
 agatgtatta gatgtgactg attttaacaa atcctattag atttgtatca actagttaca 2400  
 tgttctattc atagtctttt gtgaatcatt gcctttttgt ttaaaaagat ggcctatctt 2460  
 gagcctttgt ataggtacat tctgtttttt gtgacaaaag aaaaacttta aaattgtccc 2520  
 aaacagaaaa ataattggcta tcagaagtat gttttgtttt agtgtgagtt accgttactg 2580  
 tatttgttta ttgtaaaggg ggacatttag cgttcagtgc agttttcaat aaaaagtaat 2640  
 taaaatttgt t 2651

<210> 385  
 <211> 804  
 <212> DNA  
 <213> Homo Sapiens

<400> 385  
 cctggctgca gaggacccca ccagcgcggt tcatagtggc gtcatgcacg cagactcctg 60  
 caagttcccc taagttctta gaggactgct ttgccttttg atctgagagt tgcaaagttc 120  
 cataaagaat ggcccttctg gataagcaca aagtcaagag acagcgattg gacagaattt 180  
 gtgaaggtat ccgccccag atcatgaacg gccccctgca cccccgcccc ctggtggcgc 240  
 tgctggacgg ccgcgactgc actgtggaga tgccccatcct gaaggacctg gccactgtgg 300  
 ccttctgtga cgcgcagtcg acgcaggaaa tccacgagaa ggttctaaac gaagccgtgg 360  
 gcgccatgat gtaccacacc atcacctca ccaggaggga cctggagaag ttcaaggccc 420  
 tgagagtgat cgtgcggata ggcagtggct atgacaacgt ggacatcaag gctgcccggc 480  
 agctcggaaat tgccgtgtgc aacatccgt ctgcagccgt ggaagagaca gggactcta 540  
 ccatctgccca catcctcaac ctgtaccgga ggaacacgtg gctgtaccag gcaactgcgg 600  
 aaggcacgcy ggttcagagc gtggagcaga tcccgcgagg tggcctcggg agcgggccc 660  
 atnctgtggg agacgcttgg gcctcattgg ctttgggtccg caccggggca agcgggttgc 720  
 agttcgagcc aaggcctttg gattcagcgc atattttatg accctacttt gcanggatgg 780  
 gatcgaaccg gtcccntggc cgtg 804

<210> 386  
 <211> 782  
 <212> DNA  
 <213> Homo Sapiens

<400> 386  
 gcatcatcag aggggttttac tgaacttaca accgacttgc ccgctcagta tgcagttcag 60  
 atgtgagagg cgttctctcg tacagcagcc tgtactgtct tcaatcctat gcgtgcagg 120  
 gtctaccaca ggcaaacagt tttctcccca tttttagta atgtgatttt cctattagca 180  
 aaaagaggtc accagcccct gtagacttaa gggactcaag tcacaggatg gggatttcct 240  
 cttaatattt tttattttgt tgtttgaact cttgatgcaa cattgtagag cagggtgttc 300  
 aggacctgct gtgcccagg gactgataaa ggaaaaagct ctattttatc tttttgtgat 360  
 ttgatgcaca gatgaaaaac ttaacacaca ataacagaag ttggtcgta ataatcaca 420  
 tcctagtctt tcagcgcttc cgtaagcaga cgacatcttc agttttctag ctctttagt 480  
 ttcaacactg caacatcaat gatgcatatg tccagaatca gttacaaaga ccatccgatt 540  
 ctttttctct tagttcatct atttttcact ggtccttggg cccaagtgt tctgagtgat 600  
 taccttcttg cattctctgc tattgctcgg tggggtgctc tcgatggccc cgtggttgn 660  
 gggctggttg ggaanagggc ncttgggaaa ggaagtgcc ctgtccggaa ggntggtgaa 720  
 gtcactggga ngcctccagg gatgannccc tttccatggg ntgcaaggaa agncttctg 780  
 ga 782

<210> 387  
 <211> 865  
 <212> DNA  
 <213> Homo Sapiens

<400> 387  
 agattancnn cnggagctcg cgcgcctgca ggtcgacact agtggatcca aagctgtatc 60  
 agagcgactg cgtctccttg cactgcaatc tcaacgaaca taaccaccac ctcatcaatg 120  
 actttaccat aaagcagatg aggcaggag cattccttgt gaacgcaccc cgtggtggcc 180  
 tggtagacga gaaagcctta gcacaagctc tcaaggaggg caggatacga ggggcagccc 240  
 tctatgtgcy tgagtggag cccttttagct ttgctcaggg tccgttgaaa gatgcaccga 300  
 atcttatctg cactcctcac actgcctggg acagcaagca ggcgtcactg gagatgaggg 360  
 aggcagctgc cactgagatc cgccgagcca tcacaggtca catcccagaa agcttaagaa 420

WO 99/04265

```

actgtgtgaa caaggaatta tctgtcacat cagcgccttg gtcagtaata gaccagcaag      480
caattcatcc tgagctcaat ggtgccacat acagatatcc gccaggcatc gtgggcgtgg      540
ctccaggagg acttcttgca gccttggaag ggatcatccc tggaggcatc ccagtgactc      600
acaacctccc aacagtggca catccttccc aggcgccttc tcccaaccag cccacaaaac      660
acggggacaa tcgagagcac ttcaacgagc aatagcagag aatgcccgga aggtaatcat      720
tcagatacat ttgggaccna gagatagtga aaaatgatga acttagagaa aaaggaatat      780
gaaggncctt ggaactggat cttggactta tgcattcatt atgcttgcaa gtggttaaaa      840
ctnccaggag ctttgaaaac tggaa                                           865

```

&lt;210&gt; 388

&lt;211&gt; 753

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

```

<400> 388
gagtataang gttaaattct atttaaaaag aaagnccatt aaatcaactt caagttctta      60
nctcatagga ctatttngna ncacttcttt gnaaatatca tttngttagg tnatnggcaa      120
ancagtttca nggttcaactt ccttcccttg anccaggnc caggncatttn gctttggggn      180
aaattaaaaa canaattcta aaagttganc anctttgttt tttttnaatn gactnanctn      240
tanccacca ttacaactta nggacggcat gactngataa nganggactt gngtgagggt      300
ttgagttttc aattaanctt tgnatcacat gaggnaatng ncagcattct tgagncnggt      360
tatggaatag gcagatanaa ccctgtagta ccaanagttg gaaatnggct aatngacaac      420
gcactngcct taacatctc angtagagaa cttttacatt agngagangt ncttgaattt      480
cananctcac caaattttta ttacttttta tngaaaactg cagngaangc taaaggctta      540
cgtttacaat aaacaaatcc agtancagta actcacactg aaccaaanca tacttctgat      600
agccattatt tttcngcttg gggacaattt taaagntttt cttttggccc aaaaaccngg      660
aatgtatccc aaacnaaggc tcaaaagagg cccatcnttt tcaaacaaaa aagggcantg      720
gattcncaaa aanactggng aaatagaaca tgg                                           753

```

&lt;210&gt; 389

&lt;211&gt; 737

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

```

<400> 389
aggaaatcca cgagaagggt ctaaacgaag ccgtggggcg catgatgtac cacaccatca      60
ccctcaccag ggaggacctg gagaagttca aggccctgag agtgatcgtg cggataggca      120
gtggctatga caacgtggac atcaaggctg ccggcgagct cgggaattgcc gtgtgcaaca      180
tcccgtctgc agccgtggaa gagacagcgg actctacat ctgccacatc ctcaacctgt      240
accggaggaa cacgtggctg taccaggcac tgcgggaagg cacgcgggtt cagagcgtgg      300
agcagatccg cgagggtggc tggggagcgg cccgcacccg tggggagacg ctgggcctca      360
ttggcttttg tcgcacgggg caggcggttg cagttcgagc caaggccttt ggattcagcg      420
tcataatttta tgacccttac ttgcaggatg ggatcgagcg gtccctgggc gtgcagaggg      480
tctacaccct gcaggatttg ctgtatcaga gcgactgcgt ctccttgac tgcaatctca      540
acgaacataa ccaccacctc atcaatgact ttaacataaa gcagatgagg cagggagcat      600
tccttgtaga cgcagcccggt ggcggccttg tggacgagaa agccttagca caagccctna      660
agganggcag gatacnaagg ggcaancctt gacgtgcatg agtcaaaaanc ctttagcttt      720
tgcttaaggg tccgttg                                           737

```

&lt;210&gt; 390

&lt;211&gt; 775

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 390

```

gcacatcag aggggttttac tgaacttaca accgacttgc ccgctcagta tgcagttcag      60
atgtgagagg cgcttctctg tacagcagcc tgtactgtct tcaatcctat gcgtgcagggt      120
gtctaccaca ggcaaacagt tttctcccca tttttagta atgtgatttt cctattagca      180
aaaagaggtc accagcccct gtagacttaa gggactcaag tcacaggatg gggatttcct      240
cttaatatTT tttattttgt tgtttgaact cttgatgcaa cattgtagag caggggtgtc      300
aggacctgct gtgcccagg gactgataaa ggaaaaagct ctatttattc tttttgtgat      360
ttgatgcaca gatgaaaaac ttaacacaca ataacagaag ttggtcgtta ataaatcaca      420
tcctagtctt tcagcgcttc cgtaagcaga cgacatcttc agttttctag ctctttagt      480
ttcaacactg caacatcaat gatgcatatg tccagaatca agttacaaag accatccgat      540
tctttttctc ttagtctatc tatttttcac tgnctcttgg tcccaagtgt atctgagtga      600
ttaccttctg gcattctctg ctattgctcg ttgggggtgct ctcgattggc cccgtgtttt      660
gtgggctggt tggganaagg cccttgggaa aggatgtgcc actgtcggga gggttgtgag      720
tcaactggat gccttncagg ggatgatccc tttcatggct tggcaggaaa gtctt      775

```

&lt;210&gt; 391

&lt;211&gt; 776

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 391

```

gtggataagc acaaagtcaa gagacagcga ttggacagaa tttgtgaagg tatccgcccc      60
cagatcatga acggccccct gcacccccgc cccctgggtg cgctgctgga cggccgcgac      120
tgcactgtgg agatgcccct cctgaaggac ctggccactg tggccttctg tgacgcgcag      180
tcgacgcagg aaatccacga gaaggttcta aacgaagccg tgggcgccat gatgtaccac      240
accatcacc tcaccaggga ggacctggag aagttcaagg ccctgagagt gatcgtgcgg      300
ataggcagtg gctatgacaa cgtggacatc aaggctgccg gcgagctcgg aattgccgtg      360
tgcaacatcc cgtctgcagc cgtggaagag acagcggact ctaccatctg ccacatctc      420
aacctgtacc ggaggaacac gtggctgtac caggcactgc gggaaggcac gcgggttcag      480
agcgtggagc agatccgcga ggtggcctcg ggagcggccc gcatccgtgg cyagacgctg      540
ggcctcattg gctttggtcg cacggggcaa gcggttgacg ttcgagccaa ggcccttggg      600
ttcagcgtca tattttatga cccctacttg caggatggga tcgagccggt ccctgggcgt      660
gcagaaggtc tacaccctgc aggatttgc gtatcagaac cgactgcgct ttctttcact      720
tgcaatntta acgaacataa ccaccactt tatcaatgga cttttcccta aagcca      776

```

&lt;210&gt; 392

&lt;211&gt; 909

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 392

```

aacaattttt aattactttt tattgaaaac tgcactgaac gctaaatgtc cacctttaca      60
ataaacaatt acagtaacgg taactcacac taaaacaaaa catacttctg atagccatta      120
ttttctgttt tgggacaatt ttaaagtttt tcttttgtca caaaaacagg aatgtaccta      180
tacaaggct caaaataggc catcttttta aacaaaaagg caatgattca caaaagacta      240
tgaatagaac atgtaactag ttgatacaaa tctaatagga tttgttaaaa tcagtcacat      300
ctaatacatc tgaagtgttc ttgtataaaa tatcacgtga agaagacttt atcaatgtct      360
aaaaaagtgg gtttgttcat agacaatctg acaagttacc ataaaaagtg tttcctgaga      420
cataaggaaa tgcaacatta ttcttcttga acccttttag ctcaagactt tccactcaat      480
aaaatagcag aggatctgaa actgagaaaa tatatttgag tacaaacagc ttgtgaaact      540
taatactttt tttttttttt tgcacatca gagggtttta ctgaacttac aaccgacttg      600
ccgctcagat atgcagttca naagtganag gcgcttctct gtacagcaac ctggactggc      660
ttcaatccta tgcgtgcagg tgtctaccca gggcnaacag ttttctcccc attttggtag      720
taatggggat tttcctatta gccaaaaaag angtcaccag nccctgnaga cttaaaggga      780
cctcaaggtc nccaggaatg ggggatttcc ctentaaaaa atttttaatt ttgggggggt      840
gnaactcttg gangccacca tttgtaaaac canggggttc aagaacctgg ntgggcccc      900

```

WO 99/04265

909

agggacctg

<210> 393  
 <211> 769  
 <212> DNA  
 <213> Homo Sapiens

<400> 393  
 caaatttttaa ttacttttta ttgaaaactg cactgaacgc taaatgtcca cctttacaat 60  
 aaacaaatac agtaacggta actcacacta aaacaaaaca tacttctgat agccattatt 120  
 tttctgtttg ggacaatttt aaagtttttc ttttgtcaca aaaacaggaa tgtacctata 180  
 caaaggctca aaataggcca tctttttaaa caaaaaggca atgattcaca aaagactatg 240  
 aatagaacat gtaactagtt gatacaaatc taataggatt tgttaaaatc agtcacatct 300  
 aatacatctg aagtgttctt gtataaaata tcacgtgaag aagactttat caatgtctaa 360  
 aaaagtgggt ttgttcatag acaatctgac aagttaccat aaaaagtgtt tcctgagaca 420  
 taaggaaaatg caacattatt cttcttgaac ccttttagct caagactttc cactcaataa 480  
 aatagcagag gatctgaaac tgagaaaata tatttgagta caaacagctt gtgaaactta 540  
 atactttttt tttttttttg catcatcana gggttttact gaacttataa ccgacttgcc 600  
 cgctcagtat gccagttcan atgtgaaagg cgctttnttg tcagcagcct gnactggctt 660  
 caatcctatg cgtgcaggng tttaccacaa ggcaaacagg tttctnccc catttttgga 720  
 agtaatgggg attttcctat tagcaaaaaa gaaggncacc aanccctg 769

<210> 394  
 <211> 813  
 <212> DNA  
 <213> Homo Sapiens

<400> 394  
 ggaagatggc ggagctgcgc gtgctcgtag ctgtcaagag ggtcatcgac tacgccgtga 60  
 agatccgagt gaagcctgac aggaccggtg tggtcacgga tgggtgtgaag cactccatga 120  
 accccttctg tgagatcgcg gtggaggagg ctgtgcggct caaggagaag aagctggtga 180  
 aggaggtcat cgccgtcagc tgtgggcctg cacagtgccca ggagacgatt cgtaccgccc 240  
 tggccatggg tgcagaccga ggtatccacg tggaggtgcc ccagcagaa gcagaacgct 300  
 tgggtccctt gcaggtggct cgggtcctgg ccaagctggc agagaaggag aaggtggacc 360  
 tgggtgctgt gggcaaacag gccatcgatg atgactgtaa ccagacaggc cagatgacag 420  
 ctggatttct tgactggcca cagggcacat tcgcctccca ggtgacgctg gagggggaca 480  
 agttgaaagt ggagcgggag atcgatgggg gcctggagac cctgcgcctg aagctgccag 540  
 ctgtggtgac agctgacctg aggtcaacg agccccgcta cgccacgctg cccaacatca 600  
 tgaaagccaa gaagaagaag atcgaggtga tcaagcctgg ggacctgggt gtggacctga 660  
 cctccaagct ctctgtgatc agtgtggagg acccgcccca gcgcacggcc ggcgtcaagg 720  
 tggagaccac tgaggacctg gtggccaagc tgaaggagat tgggcggatt tgagcccctc 780  
 ccagagatgg caataaaact gactctcaac atc 813

<210> 395  
 <211> 762  
 <212> DNA  
 <213> Homo Sapiens

<400> 395  
 ggaagatggc ggagctgcgc gtgctcgtag ctgtcaagag ggtcatcgac tacgccgtga 60  
 agatccgagt gaagcctgac aggaccggtg tggtcacgga tgggtgtgaag cactccatga 120  
 accccttctg tgagatcgcg gtggaggagg ctgtgcggct caaggagaag aagctggtga 180  
 aggaggtcat cgccgtcagc tgtgggcctg cacagtgccca ggagacgatt cgtaccgccc 240  
 tggccatggg tgcagaccga ggtatccacg tggaggtgcc ccagcagaa gcagaacgct 300  
 tgggtccctt gcaggtggct cgggtcctgg ccaagctggc agagaaggag aaggtggacc 360

WO 99/04265

tggtgctgct	gggcaaacag	gccatcgatg	atgactgtaa	ccagacaggg	cagatgacag	420
ctggatttct	tgactggcca	cagggcacat	tcgcctccca	ggtgacgctg	gagggggaca	480
agttgaaagt	ggagcgggag	atcgatgggg	gcctggagac	cctgcgcctg	aagctgccag	540
ctgtggtgac	agctgacctg	aggctnaacg	agcccccgct	acgccacgct	tgccaacatc	600
atgaaagcca	agaagaagaa	gatcgangtg	atcaacctgg	gganctgggt	gtggacctga	660
ctccagcttt	tttngatca	gtgtgganga	ccggccacg	cacgggcgcg	tcaangtgga	720
gacctgagg	acctggtggn	caactnaaag	aaaatgggcg	ga		762

&lt;210&gt; 396

&lt;211&gt; 822

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 396	
gagagtcagt	tttattgcca
tgccaccag	gtctcagng
ccacactgat	cacagagagc
cctcgatctt	cttctctctg
tgagcctcag	gtcagctgtc
catcgatctc	ccgctccact
tgccctgtgg	ccagtcaaga
cgatggcctg	tttgcccagc
ggacccgagc	cacctgcagg
ggatacctcg	gtctgcaccc
gcccacagnt	gacggcgatg
ggcctcttca	acgggatctt
gaaccaccg	gnccttgtna
ttttgacagg	tacgaacccc

tctntgggag	gggctcaa	ccgccc	tccttc	60
gtctccac	tgacgc	cgtgcg	ggcggg	120
ggtccac	caggtccc	ggcttg	atca	180
gctttcat	tggtgg	cgtggc	cggtct	240
gcagcttc	gcgca	gggtc	tccagg	300
gcagcttc	gagcga	atg		360
tcacctgc	tgctgg	ta	cat	420
cttctctg	agcttg	cca		480
gtctgg	acctcc	ag		540
gtctgg	acctcc	ag		600
cgtctc	ca	gt		660
tttctc	gagccg	aca		720
gagngc	ta	aatcc		780
cgatga	ccn			822

&lt;210&gt; 397

&lt;211&gt; 812

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 397	
gatgttgaga	gtcagtttta
tcagcttggc	caccaggtcc
ggtcctccac	actgatcaca
tgatcacctc	gatcttcttc
gctcgttgag	cctcaggtca
ggcccccatc	gatctccgc
cgaatgtgcc	ctgtggccag
catcatcgat	ggcctgtttg
tgccaggac	ccgagccacc
ccacgtggat	acctcggtct
gtgcaggccc	acaagctgac
cgcacagcct	tcttcaccgc
cggngaccac	accgggccct
gacctttttg	acaagctacc

ttggccat	ctc	tgagg	gggc	tcaa	atccgc	cca	atctc	60
ccac	cttg	ac	gcgg	ccgtg	cgctg	gggcg		120
cac	accag	g	tcccc	aggct				180
ggg	cagc	gtg	cgtag	cg				240
cttc	aggc	gc	agg	gtct	cca			300
ctcc	agc	gtc	acct	ggg	agg			360
tggt	tac	agt						420
ctt	ctct	tc	tct	gcc	agt			480
ggg	ggc	acct						540
cca	agc	gttc	tgctt	ctg	ct			600
ac	gaat	cgtc	tcct	ggc	act			660
at	ggagt	gct	taca	acc	atc			720
cttt	ac	ggg	ta	atc	gnntg			780
ca								812

&lt;210&gt; 398

&lt;211&gt; 751

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens



WO 99/04265

<400> 398  
 gatgttgaga gtcagtttta ttgccatctc tgggaggggc tcaaatccgc ccaatctcct 60  
 ttngcttggc caccaggtcc tcagtgggtc ccaccttgac gccggccgtg cgctggggcg 120  
 ggtcctccac actgatcaca gagagcttgg aggtcaggtc cacacccagg tccccaggct 180  
 tgatcacctc gatcttcttc ttcttggctt tcatgatgtt gggcagcgtg gcgtagcggg 240  
 gctcgttgag cctcagggtc gctgtcacca cagctggcag cttcaggcgc aggggtctcca 300  
 ggccccatc gatctccgc tccactttca acttgtcccc ctccagcgtc acctgggagg 360  
 cgaatgtgcc ctgtggccag tcaagaaatc cagctgtcat ctgccctgtc tggttacagt 420  
 catcatcgat ggctgtttg cccagcagca ccaggtccac cttctccttc tctgccagct 480  
 tggccaggac ccgagccacc tgcaggggac ccaagcgtnc tgcttctgct gggggcacct 540  
 ccacgtggat acctcggtct gcacccatgg ccagggcggg acnnaatcgn ctctgggcac 600  
 tgtgcaggcc cacaagntga cggggaatga cctccttnac caagcttntt ntccttgacc 660  
 cgaaaagctt cttcaccng aacttncaga angggttcaa tggantgctt tacacattcg 720  
 ggaccacccc cgggccttgt caggctttaa t 751

<210> 399  
 <211> 800  
 <212> DNA  
 <213> Homo Sapiens

<400> 399  
 agatgttgag agtcagtttt attgccatct ctgggagggg ctcaaatccg cccaatctcc 60  
 ttcagcttgg ccaccaggtc ctcagtgggc tccaccttga cgccggccgt gcgctggggc 120  
 ggggtcctcca cactgatcac agagagcttg gaggtcaggt ccacaccag gtccccaggc 180  
 ttgatcacct cgatcttctt cttcttggct ttcagtatgt tgggcagcgt ggcgtagcgg 240  
 ggctcgttga gctcaggtc agctgtcacc acagctggca gcttcaggcg cagggtctcc 300  
 agggcccat cgatctccc ctccactttc aacttgtccc cctccagcgt cacctgggag 360  
 gcgaatgtgc cctgtggcca gtcaagaaat ccagctgtca tctgccctgt ctggttacag 420  
 tcatcatcga tggcctgttt gccagcagc accaggtcca ccttctcctt ctctgccagc 480  
 ttggccagga cccgagccac ctgcagggga cccaagcgtt ctgcttctgc tgggggcacc 540  
 ttccacgtgg atacctcggg ctgacccatg gccagggcgg tacgaatcgt ctctgggcac 600  
 tgnngcangcc cacaagctga cggcgatgac ctncctnacc agcttcttct ncttgagccc 660  
 ggacaagnct tcttcaaccg ggatctcaca agaaggggtc atggagtgtt ttcacaccat 720  
 tcggganac aaccggnct gncaaggctt naacttggac ntttacggng taatccgatg 780  
 aaccttttt gacagntacc 800

<210> 400  
 <211> 810  
 <212> DNA  
 <213> Homo Sapiens

<400> 400  
 ggaagactga attgaaagaa gatagctcta gcagtgaagc agaggaagaa gaggaggagg 60  
 aagatgatga aaaagaaaag gaggataata gcagtgaaga agaggaagaa atagaaccat 120  
 ttccagaaga aaggagaaac tttcttcagc aattgtacaa atttatggaa gatagaggta 180  
 cacctattaa caaacgacct gtacttggat atcgaaatgt gaatctcttt aagttattca 240  
 gacttgatca caaacttggg ggatttgata atattgaaag tggagctgtt tggaaacaag 300  
 tctaccaaga tcttggaaat cctgtcttaa attcagctgc aggatacaat gttaaattgtg 360  
 cttataaaaa atnctnatnt ggctntgngg agtactgtac atcagccaac attgaatttc 420  
 agatggcatt gccagagaaa gttgttaaca agcaatgtaa ggagtgtgaa aatgtaaaag 480  
 aaataaaagt taaggaggaa aatgaacag agatcaaaga aataaagatg gaggaggaga 540  
 ggaatataat accaagagaa gaaaagccta ttgaggatga aattgaaaga aaagaaaata 600  
 ttaagccctc tctgggaagt aaaaagaatt tattagaatc tatacctaca cattctgatc 660  
 aggaaaaaga agttacatta aaaaaccnga agacaatgaa aatctgggcc gaccaagatg 720  
 atgacncaac taggtagat gaatccctca accntaagggt agaactgagg aagaaaaagc 780

WO 99/04265

810

caaatctgga tncnatgaat gggattaagc

<210> 401  
 <211> 860  
 <212> DNA  
 <213> Homo Sapiens

<400> 401  
 gggaggcccg cctagccacc ctgaccagcc gtgtagaaga agacagcaac agagattata 60  
 aaaaactcta tgagagtgcct ctgactgaaa accaaaaact gaaaacaaa cttcaggaag 120  
 cccagctaga gctagcagat ataaagtcca agcttgagaa ggtggcccag cagaaacaag 180  
 aaaagacctc tgaccgatca tcagtgcctgg agatggagaa acgggagagg cgagccttgg 240  
 agcgcaaaat gtcagaaatg gaggaagaaa tgaagggtgtt aacagaactg aaatccgaca 300  
 accagaggct gaaagatgaa aatgggtgcc tcatacagagt catcagcaaa ctgtccaagt 360  
 aggctaggct ccagatttat gaggaagaaa agggacagca tttgctgccc ccaccctctt 420  
 tttccagtcc ttgccttcca accaaaagaa atggatgttt tgggtggaagg acacttcttt 480  
 ctatcacctt cttcagtcac ctctatacac tctacatttt ctctgcactt tcaatgcctt 540  
 gttcttccaa acccctatcc caagttttat gacagtttta attgaagcat gattgtggta 600  
 attcgagcca tctggagaat gctctgggga gtacaccagg ctacagctgtg gaccctctca 660  
 cttcctgctg ctacagctact ttgtccacat tggatttggg ccaaactgt aagactttct 720  
 accctnatca gtatccttca gctttttaca ttaaccaggt gnccttctga tataggtgaa 780  
 gtccttgnng gtaccactt tcaggatcct ggaatggggg gcccaagaga aacngccagg 840  
 atggttgaat tggatcattc 860

<210> 402  
 <211> 779  
 <212> DNA  
 <213> Homo Sapiens

<400> 402  
 gagatggagt cttgctctgt caccagggct ggagtgcagt ggctgatca aggetcactg 60  
 caagctccgc ctcccggtt cagccattc tcctgcctca gctcccgag tagctgggac 120  
 tacaggcgcc cgccaccag cctggctaatt tttttgtatt tttagtagag attgggtttc 180  
 accgtgtag ccaggatggg ctggaactcc tgacctcgtg atctgtccac ctcgccctcc 240  
 tgaagtgtg ggattacagg catgagccac tgcacctggg ggaattggga tcttgaatta 300  
 cagcttctag tttaaacagc atgtgggtgtt tcagagggag gaccatggag agctacatgt 360  
 catgttagga aagaattaac agacagaggt agtatatatt aagggaatga accactctaa 420  
 aactgaata tcaactggcaa ccctaaaatg atgaggattt aatgacttgc aactcaagt 480  
 gaaccaaggg ataaaactcc tacaaaaaga aaatactgta agtattaatg ctaggttatc 540  
 atcaaganct aatgggtttta ttttgcactg gatttgnatt cttttccagg cctggacatg 600  
 atattttaaa ggctggttnt ggctagagga ggatgggcca anatgtgaca gggangaaaa 660  
 gcatgcctta tgaggaaatga cttaaaggga ctagaggtta cagcagctca aaagtaagaa 720  
 ctgaggggga aaacccccc ctgnaccata tntnaagggc cgttaaagaa ttgcagaat 779

<210> 403  
 <211> 1443  
 <212> DNA  
 <213> Homo Sapiens

<400> 403  
 cttcaggaac tgtaaaaaga aaaacaacaa gaagtaaagc agctacagaa ggactgcatc 60  
 aggtatcaag agaaaattag tgctctggag agaactgtta aagctctaga atttgttcaa 120  
 actgaatctc aaaaagattt ggaaataacc aaagaaaatc tggctcaagc agttgaacac 180  
 cgaaaaagg cacaagcaga attagctagc ttcaaagtcc tgctagatga cactcaaagt 240  
 gaagcagcaa gggctcctagc agacaatctc aagttgaaaa aggaacttca gtcaataaaa 300

gaatcagtta	aaagccagat	gaaacaaaag	gatgaagatc	ttgagcgaag	actggaacag	360
gcagaagaga	agcacctgaa	agagaagaag	aatatgcaag	agaaactgga	tgctttgcgc	420
agagaaaaag	tccacttgga	agagacaatt	ggagagattc	aggttacttt	gaacaagaaa	480
gacaaggaag	ttcagcaact	tcaggaaaac	ttggacagta	ctgtgacca	gcttgagcc	540
tttactaaga	gcatgtcttc	ccttcaggat	gatcgtgaca	gggtgataga	tgaagctaag	600
aaatgggaga	ggaagttag	tgatgcgatt	caaagcaaag	aagaagaaat	tagactcaaa	660
gaagataatt	gcagtgttct	aaaggatcaa	cttagacaga	tgtccatcca	tatggaagaa	720
ttaaagatta	acatttccag	gcttgaacat	gacaagcaga	tttgggagtc	caaggcccag	780
acagaggtcc	agcttcagca	gaaggtctgt	gatactctac	agggggaaaa	caaagaactt	840
ttgtcccagc	tagaagagac	acgccaccta	taccacagtt	ctcagaatga	attagctaag	900
ttggaatcag	aacttaagag	tctcaaagac	cagttgactg	atttaagtaa	ctctttagaa	960
aaatgtaagg	aacaaaaagg	aaacttgga	gggatcataa	ggcagcaaga	ggctgatatt	1020
caaaattcta	agttcagtta	tgaacaactg	gagactgac	ttcaggcctc	cagagaactg	1080
accagtaggc	tgcatgaaga	aataaatatg	aaagagcaaa	agattataag	cctgctttct	1140
ggcaaggaag	aggcaatcca	agtagctatt	gctgaactgc	gtcagcaaca	tgataaagaa	1200
attaaagagc	tgaaaaacct	gctgtncag	gaggaagagg	agaatattgg	tttgaagag	1260
gagaacaana	angcttgtgg	ttaaaaccca	atcagcttat	gggaacactt	gaaaaccatc	1320
aaaanggaaa	catttagnca	aaaggcncag	ttggattcct	tggtnaaatc	ctgncttctn	1380
ttccaaatgg	atccgagaac	cgcntagtgg	ggggactatt	caccagctgg	gaanagccga	1440
ctt						1443

&lt;210&gt; 404

&lt;211&gt; 819

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 404

gcgattcaaa	gcaaagaaga	agaaattaga	ctcaaagaag	ataattgcag	tggttctaaag	60
gatcaactta	gacagatgtc	catccatatg	gaagaattaa	agattaacat	ttccaggctt	120
gaacatgaca	agcagatttg	ggagtccaag	gccagacag	aggccagct	tcagcagaag	180
gtctgtgata	ctctacaggg	ggaaaaacaa	gaacttttgt	cccagctaga	agagacacgc	240
cacctatacc	acagtcttca	gaatgaatta	gctaagttgg	aatcagaact	taagagtctc	300
aaagaccagt	tgactgattt	aagtaactct	ttagaaaaat	gtaaggaaca	aaaaggaaac	360
ttggaaggga	tcataaggca	gcaagaggct	gatattcaaa	atttctaagtt	cagttatgaa	420
caactggaga	ctgatcttca	ggcctccaga	gaactgacca	gtaggctgca	tgaagaaata	480
aatatgaaag	agcaaaagat	tataagcctg	ctttctggca	aggaagaggc	aatccaagta	540
gctattgctg	aactgctgca	gcaacatgat	aaagaaatta	aagagctgga	aaacctgctg	600
tnccaggagg	aagaggagaa	tattggttta	gaagaggaga	acaanaangc	ttgtgggttaa	660
aacccaatca	gcttatggga	acacttgaaa	accatcaaaa	nggaaacatt	tagncaaaaag	720
gcncagttgg	attccttggg	naaatcctgn	cttctnttcc	aaatggatcc	gagaaccgcn	780
tagtgggggg	actattcacc	agctgggaan	agccgactt			819

&lt;210&gt; 405

&lt;211&gt; 761

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 405

ctgaaaataa	ttttattatt	ttacagtgtg	tcaggaaact	tcccaggatg	ttgtaaccac	60
natttaatac	ccacagtana	tttanagcan	atcagtcagc	ccacttgtct	tcctcttctt	120
ttaggganag	gctaggcagt	gaacacatca	tgtatgcaat	ganaaaaata	ccaactggta	180
ggatggggga	ggggagggga	ggcagggaat	aggcncaa	ggaattctat	cctggctgtc	240
cttctcaggt	ctatctatat	ttaattttgt	cttctctata	ttctccttcc	attgccacag	300
agggcanaga	caatggggct	gaaaaactgt	aataactgnc	actaacagca	aagtanctta	360
gtnccttcaag	aggtcaggag	ttgcagtgtg	gtgttanacc	agtcanactc	ctggctgaaa	420

```

gtcaatgcct aatattggct cccagnggcc cctgagcact gtctcagggt ccacattcca 480
ggaatnttca natnttcctg gaatgacaag aattggaacc ctgctgncca tagacacttc 540
tccctgcctt ttggtgaaag gaaagacttt gggccctttt aataccttan tatccccatgt 600
gatcaagggc caaaagccaa aggggattct tatccttata gcctaagacc ctgaaattct 660
tcccttccca attatatctg gaaattggcc aggggaanaa aaatgctgnc cttccccatgn 720
ggaatctacc aggnnttaaaa ccccnttaag ggagtccct t 761

```

<210> 406  
 <211> 758  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 406
gatactgaac ttcagattat taggtttatt gaaaccatcc tcttggtctg gctgaaagac 60
attcctcagt atctttttaca ggaccacaaa agatcagggt cctgcaaaat ctcaacaaat 120
attaggctca acaaaccaaa tgtgattctc agattaagca gaagcgttca ggctcagggtc 180
agtagaagaa agcagactcg ccagtccctg cagctccaac ctgtcctcgt atcacctctg 240
tttttgagg cactttccgt gaagagtgg agagaagacc tgtaaatggg aagactgttc 300
cactggaatt gatgttctga tgtagagggt gagagaattc caagttttga ggggagtgggt 360
ccaaagagta acaactaagt ctatagatgg cccgtaaaaac acagaatgag caggacatga 420
atcattagaa agtagatggc tgctagaagt ggcactcggg tccgtgaatg acagagtga 480
cgcaggactc gcttccatcc aacgccactc cgggtccttc gacaactgtt gcttgtaaga 540
tctattaaca gtgcctgctc ctgagtgcc caggagccaa tgataggagt ccgggaaaga 600
gtcccatcca ctgngctcta accggctgga tctgctcctc ggccacagga gagagcattt 660
ttcagcagcc actctttggc cncggctctt cttccagcag cttcctttaa atcattcctt 720
tcttggtctg nggttgccat aactgctgggt tggacctt 758

```

<210> 407  
 <211> 778  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 407
cttcaggaaac tgttaaaaga aaaacaacaa gaagtaaagc agctacagaa ggactgcatc 60
aggtatcaag agaaaattag tgctctggag agaactgtta aagctctaga atttgttcaa 120
actgaatctc aaaaagattt ggaataaacc aaagaaaatc tggctcaagc agttgaacac 180
cgcaaaaagg cacaagcaga attagctagc ttcaaagtcc tgctagatga cactcaaagt 240
gaagcagcaa gggctcctagc agacaatctc aagttgaaaa aggaacttca gtcaaataaa 300
gaatcagtta aaagccagat gaaacaaaag gatgaagatc ttgagcgaag actggaacag 360
gcagaagaga agcacctgaa agagaagaag aatatgcaag agaaactgga tgctttgcgc 420
agagaaaaag tccacttgga agagacaatt ggagagattc aggttacttt gaacaagaaa 480
gacaaggaag ttcagcaact tcaggaaaac ttggacagta ctgtgaccca gcttgacgcc 540
tttactaaga gcatgtcttc ccttcaggat gatcgtgaca gggatgata tgaagctaa 600
aaatgggaga ggaagtttag tgatgctgatt caaagcaaag aagaagaaat tagactcaaa 660
gaagataatt gcagtgtcta aaggacactt agacagatgt ctttctatg gaagaattaa 720
agantaccat ttcaggcttt gacctgaca gcagatttgg agtccaggnc caaccaga 778

```

<210> 408  
 <211> 752  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 408
canattatta ggttnatnga anccatcctn tnggntnggn tgaaanacnt tcctnagtnt 60
nttttacngg accncaaaan atcagggncc tgcaaaatct cancaaatnt taggctcanc 120

```

WO 99/04265

```

aaaccaaang ngattntnaa attaancaaa ancgttcagg ctcagggcag taaaaaaaag 180
caaactcgcc agnccttgca gctccaacct gncctcgat cncctntgtt tttgcaggcn 240
ntttccgnga anagttggan anaaaacctg taaanggnaa aactgttcca ntggaaatnga 300
ngttctgatg ttanaggnga nanaattcca agttttgagg ggagnggncc aaagagtacc 360
aactaagtnt ntananggcc cgtaaaacnc anantganca ggacntgaat cnttaaaaag 420
taaagtggctg ntaaaagngg cncctgggtc cgtgaatgac agagtganen caggactcgn 480
ttccatccaa cgccantccg ggtccttcga caactgtngc ttgtaanatc tattaacagg 540
gcctgntcct gantgccaca ggagccaatg ntaggagtcc gggaagagtc ccatttcact 600
ggggctttaa ccgtctgaat ctggtccttg gccncagaga gagcnttttt nagnaggccc 660
ncnttttggg ccccgttntt ttttccagca ngcttcctt taattcatte ncttcccggg 720
ctgggggttg caaacntgc tggntgacct tt 752

```

&lt;210&gt; 409

&lt;211&gt; 736

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 409

```

ggcgtgtcaa aactaacgta cctgtcaagc tctttgcccg ctccacagct gtcaccacca 60
gctcagccaa gatcaagtta aagagcagtg agctgcaggc catcaagacg gagctgacac 120
agatcaagtc caatatcgat gccctgctga gccgcttggg gcagatcgct gcggagcaaa 180
aggccaatcc agatggcaag aagaagggtg atggagggtg cgccagcggc ggccggcgccg 240
gtggtgggtg cagcgggtgg ggtggcagtg gtggtggcgg tggcgggtggc aacagccggc 300
caccagcccc ccaagagaac acaacttctg aggcaggcct gccccagggg gaagcacgga 360
cccagacga cggcgatgag gaagggtccc tgacacacag cgaggaagag ctggaacaca 420
gccaggacac agacgcggat gatggggcct tgcagtaagc agcctgacag gagcaatggc 480
caccagcagg tgaagggcat cgctgcccag gcctcaagcc gggcacccaa ccctggatgc 540
cacccccag cgggtaccag aggaaagctg cagcaggccg cctcctcccc caacgcacnc 600
cagccagtgc catgtcctct gcaggtggag ttactggcct actccttccc atgaaccctt 660
ccttgctgac acttgccagg ccagagggta gagcacangg gtttcccat acttaccttc 720
ccttcccagg acactt 736

```

&lt;210&gt; 410

&lt;211&gt; 766

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 410

```

gggatccaat ctctttattg tcagggtccc ctccctgngg ccccccgcca aacctataga 60
aaaaacccaa gcctgggagt gtccctgggga ggggaggtag tatggggaaa ccctgngct 120
ctaccctctg gcctgggcag tgcanacagg gagggctcat ggggaaggag taggccagta 180
actccacctg cagaggacat ggcactggct gggatgcgtt gggggaggag gcgcctgctg 240
ccagctttcc tctggtaccc gctggggggg ggcactccagg gttgggtgcc cggttgagg 300
cctggggcag cgatgccctt cacctgctgg nggccattgc tcctgtcagg ctgcttactg 360
caaggcccca tcctccgcgt ctgtgtcctg gctgtgttcc agctcttcc ctgctgtgtg 420
caggagccct tectcatcgc cgtcgtctcg ggtccgtgct tccccctggg gcaggcctgc 480
ctcanaagtt gngttctctt ggggggctgg tggcccggct gttgccaccg gcaccggcac 540
caccactgnc accgncaccg ctgcaccacc accgncggcg cccgncgntt ggcgccaact 600
tcatnaccct tcttcttgca tctggaatgg ncttttgcct ncgcancgaa ctgntccaaa 660
cgggttaanc agggcatcna tatttggtact tgaactgggn caantctccg ncttgaangg 720
ccttgcaagc ttnaatggc ttttaactga actttggctt gaacct 766

```

&lt;210&gt; 411

&lt;211&gt; 812

&lt;212&gt; DNA

WO 99/04265

&lt;213&gt; Homo Sapiens

<400> 411  
 ggctgtgtaa aactaacgta cctgtcaagc tctttgcccg ctccacagct gtcaccacca 60  
 gctcagccaa gatcaagtta aagagcagtg agctgcaggc catcaagacg gagctgacac 120  
 agatcaagtc caatatcgat gccctgctga gccgcttgga gcagatcgct gcggagcaaa 180  
 aggccaatcc agatggcaag aagaagggtg atggagggtg cgccagcggc ggcggcggcg 240  
 gtggtggtgg cagcgggtgg ggtggcagtg gtggtggcgg tggcgggtggc aacagccggc 300  
 caccagcccc ccaagagaac acaacttctg aggcaggcct gcccagggg gaagcacgga 360  
 cccgagacga cggcgatgag gaagggtctc tgacacacag cgaggaagag ctggaacaca 420  
 gccaggacac agacgcggat gatggggcct tgcagtaagc agcctgacag gagcaatggc 480  
 caccagcagg tgaaggggcat cgctgcccc ggcctcaagc cgggcaccca accctggatg 540  
 ccacccccca gcgggtacca gaggaaagct ggcagcaggc gcctcctccc ccaacgcac 600  
 ccagccagtg ccatgtcttc tgcaggtgga gttactggcc tactccttcc ccatgagccc 660  
 tccctgtctg cactgcccag gccagagggt agagcacagg ggtttcccca tactacctcc 720  
 cctccccagg aactccccag gcttgggttt tttctatagg tttggcgggg ggcncagggg 780  
 aggggaccct gacaataaag agattggatc cc 812

&lt;210&gt; 412

&lt;211&gt; 857

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 412  
 aaccatctta gccccaaaa tgatgatgct ctggagacac gagctaagaa gtctgcatgc 60  
 tctgacatgc ttctcgaagg tggtectact acagcttctg taagagaggc caaagaggat 120  
 gaagaagatg aggagaagat tcagaatgaa gattatcatc acgagcttcc agatggagat 180  
 ctggatcttg atcttggtta tgaggatgaa gtaaatcagc tcgatggcag cagtctctct 240  
 gctagtcca cagcaacaag taatacagaa gaaaatgata ttgatgaaga aactatgtct 300  
 ggagaaaaatg atgtggaata taacaacatg gaattagaag agggagaact catggaagat 360  
 gcagctgctg caggaccgc aggtagtagc catggttatg tgggttccag tagtagaata 420  
 tcaagaagaa cacatttatg ctccgctgct accagtagt tactagacat tgatccatta 480  
 attttaatac atttggtgga ccttaaggac cggagcagta tagaaaattt gtggggctta 540  
 cagcctcgcc cactgcttc acttctgcag cccacagcat catattctcg aaaagataaa 600  
 gaccaaagga agcaacaggc aatgtggcga agtgccctct gatttaaaaga tgctaaaaag 660  
 actcaaaact caaatggccc gaagtctgat gtatgaaaac tgatgtaaag gaatacactt 720  
 tcagaaataa aaagcacagt gctgcttctg gagacatgcn gacaagnctt tttttgctga 780  
 nccagcagnt ntggctgatg tggactgaaa cttttggcag aatgcaggat ttggatggac 840  
 tcctggcnaa agtctta 857

&lt;210&gt; 413

&lt;211&gt; 790

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 413  
 ctcaagtnga ttttattanc aaaaagngca aactattttg ancaaaagta aactatgagt 60  
 cacagcnttc agcaagacat canacncgga anagnganca atattcacta agtaaaatnc 120  
 agcanatgan atgtctntca catgtatatt naattattca tgctttttca atagtctntt 180  
 agtcaacttt cagngtaatt tccacaaata tatagcagnt caaacncaaa tgcaggancn 240  
 caanggcaaa gttnggcaac tgtttngggc taattatgag tntgaaagaa anccttatat 300  
 cacagtttca cgttcatgta anccactgng caacatgaat gaatntttaa angngttgac 360  
 nctgaaatca angtncaact aangaaanta aagaanaaaa gggggcttta aaatatngt 420  
 ngcnctacag tcgtatagta agaggcagaa aaaaatgaan gaatttttaa taatcttaca 480  
 cgtgtntaca gggccaggaa cgtaatgaat ccatgttaac ttaatttcat ttaaaattnc 540

WO 99/04265

attttagaaa gtcnncnaac agaaagatcc atgcggttga acagtgtgcc tgncttgac	600
aagttagaga agatccttct ccaaaagggg gattcagtct agggntactt cagttnttcc	660
catagnggct acagggcana atctttttca aaagcaattt tctgggtccct aaatctacag	720
gcncntantgg gacctgtaat taaaancccc caattttaag gangattttt aaacccact	780
taagctttta	790

<210> 414  
 <211> 1063  
 <212> DNA  
 <213> Homo Sapiens

<400> 414	60
gnnnntnncn gccannncan agnntgntca cctccnagat nngggatggn ntggtgaccc	120
nggcnttgac tctgnnnngc gacntnttgc tagtcttcag gntcctact acaggctttg	180
taatganctn naacttgnctt gagacagcct angggagacc acggatgntc tattannngn	240
gcangctggn ctatngcaan ntgggnctna nnetgnanaa tcannngcng ccatgnnaga	300
tnaatagaag ctcatnntgt cataaatggn ccatgactta taaatnaagt ggactggata	360
tcttatgaca gnagcnatnt angcttngtg ngnagttaan gcttccacct nnggangata	420
agaggncnac cttgtntnna ctnntgcngc tagnaagancc agaganannt gccntgggag	480
attcatggcc natgatagta tatnatctct tacaccanac atgccttgct gnacncaaa	540
tctggacata cacgntttcc ccatctcaga cttcnttgca gcagctgctt nccnacnta	600
cccatgaacg acanntgctt acgntanagc ntgaacnath tgatgagctt cntcagccca	660
gacctcatca ttctgagaag cacatgtccc tgcgtttcaa cctatggatg agggaaaagnc	720
ctnngcctta aagctcttga aaatccttta cacnngaanc nttctgcata gcttnaatca	780
ctctgagntg cccacatngn gtnttggaag gcttccggnt annatgggtc cgggacctnc	840
aacccttccg tttgaatnct nacntgaccg ganagggtnt gcctgggttc cttgngccnc	900
gaacttaacc ntcacaattn ggntgngant tcntggtaac ggcntaatct nccccaggaa	960
ttggcccgctg cttcnacggg aattaanggg aatctttccc atcccnctta nnaccagtta	1020
ggngcccntt tttcaatttt cngactcccg gagctttaaa aaaccggggg ccttaggttn	1063
cttggatggc nttgggggtn gcccccttta gggaattaaa ggg	

<210> 415  
 <211> 824  
 <212> DNA  
 <213> Homo Sapiens

<400> 415	60
gtttgattnt aacaaaaant attatgcaca aatnacnnag gntanagact ctnnatctn	120
anatnaaaat ancagttata attacacaca taatataggt acctataca atgattccaa	180
taaatatcac aggaaataca ntgcattttc aagntgnana gacnaatact tnctcattca	240
cagnngttga catanganag cctatttaca tancnatctg tataaagtca tgctctnant	300
ancaggntat ncagngctgn gccancacaa tgntttnaga angtgaaaga ccggncaaac	360
cactnntggn gctggggatc tgganaagcc acctgnanaa gcttactct gagcangact	420
cannaatgnc ttgngccctt taggtggcac tggctgtgga agtggttaag ctgctgctga	480
actcaattcg tggactgnag aattaggaat ggganccagg cggttnggat gaccattgcc	540
cactenanca natnccaaag nnetnagaan gggaacnctc caancctgct tnatggngat	600
taancatnct tcttcttttg cttaaccat ggattananc acancagcna gtacngactt	660
ggntttaccc ncttcngttg gaaataagga ttcttgatng actaaannnc agctggtnaa	720
aacntaactn tccctcaatt tagcnttatt ntatgaancc ggggcctant nctntgttca	780
aaaangngnt ttttaagttcc ggtaatecta ccgnaatta nttgggggct ntgaattcan	824
cncccttana anatttnggn ttaccatttn aatccaaagg ccac	

<210> 416  
 <211> 838  
 <212> DNA

&lt;213&gt; Homo Sapiens

<400> 416  
 ctcaaaagtg gaaaatatgt acaatctgta atgagctttt tcctgaaaat gtctatagtg 60  
 tgcaacttoga aaaagaacat aaagctgaga aagtcaccagc agtagccaac tacattatga 120  
 aaatacacaa ttttactagc aaatgcctct actgtaatcg ctatttaccac acagatactc 180  
 tgctcaacca tatgttaatt catggtctgt cttgtccata ttgccgttca actttcaatg 240  
 atgtggaaaa gatggccgca cacatgcgga tggttcacat tgatgaagag atgggaccta 300  
 aaacagattc tactttgagt tttgatttga cattgcagca gggtagtcac actaacatcc 360  
 atctcctggt aactacatac aatctgaggg atgccccagc tgaatctggt gcttaccatg 420  
 cccaaaataa tcctccagtt cctccaaagc cacagccaaa ggttcaggaa aaggcagata 480  
 tcctctgtaa aagttcacct caagctgcag tgccctataa aaaagatggt gggaaaaccc 540  
 tttgtcctct ttgcttttca atcctaaaag gaccatatac tgatgcactt gcacatcact 600  
 tacgagagag gcaccaagtt attcagacgg tcacccagtt tgagaaaaag ctnacctaca 660  
 aatgnatcca ttggcttggt gngnatacca gcaacatgga ncggctnaac tatcacttct 720  
 gnatctagnt cactggangg gccgtttggn aagganccca aatggggccag gataagacaa 780  
 aaggcnccct ttnggggtaa tcagncttcc aagtctngca cctgtgnaac gcacttac 838

&lt;210&gt; 417

&lt;211&gt; 880

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 417  
 aagcacataa cagcaattta tttagatgct taaaatgaat acaaagggaa aataaagatc 60  
 acaaaattat acatactaca acagtgtgtc atatattaga tggataaat gaatccacca 120  
 tgatggtggt gaactaaaga taaaactaaa tatccaaaat gcagcactca ttggtttgct 180  
 gcttcaaac aacacacttt tatacagatc taaaagggtg caaaattagt agctgcaaag 240  
 tcaattcttg catgtgattt tagcttaaaa gatttcagaa aacagatctg aaataccagt 300  
 ttttgttttt gacagctgta atgtcaaagg tattcagaac aagaaaaatc ctataatata 360  
 agagagtcca gatataatc ttacgtggct ggcctctggt gcaagattgt acaaggttat 420  
 gtgcaaaaaac taagtctgtc caaaaagtcc atactagcgc agttttgagc ttttgctagg 480  
 taaaactagat agagcgttta ttacacagca agggcaacac taaaaaaga aatctatgat 540  
 gggcacacag taacaggatc atgagcatca cttgaatagg tctaaaagac tgtcaaata 600  
 acatttcaac tattcagaat gaatacatga aaaaaaatcg cttttcccaa aggtctacta 660  
 tacncattan actgggagct tgnatgttgg gccctacact accatgggga attangttta 720  
 acacttntta aaaacatttg gccaatcatt tcncagangg gaaagaaatg ttgaaaaggc 780  
 cgataaaata aacccttggt tttcctcgg gggattcatg gagtcacccg ccttaatggg 840  
 ttttcacatt taagttaccc gggcttgga aaaaaagggt 880

&lt;210&gt; 418

&lt;211&gt; 763

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 418  
 agaagatggc ggaagcggaa tttaaggacc atagtacagc tatggatact gaaccaaacc 60  
 cggaacatc ttctgtgtca acaacaacca gcagtaccac caccaccacc atcaccactt 120  
 cctcctctcg aatgcagcag ccacagatct ctgtctacag tggttcagac cgacatgctg 180  
 tacaggtaat tcaacaggca ttgcatcggc cccccagctc agctgctcag taccttcagc 240  
 aaatgtatgc agcccaacaa cagcacttga tgctgcatac tgacagctctt cagcagcagc 300  
 atttaagcag ctcccagctt cagagccttg ctgctgttca ggcaagtttg tccagtggaa 360  
 gaccatctac atctcccaca ggaagtgtca cacagcagtc aagtatgtcc caaacgtctg 420  
 tagaaattct tatggactgg aatcttctc aaggcttact ttgttcctgg gatgcagtgg 480  
 tgcataagaag atagggcatt gactcactca gacctggctt gccagcatg cattgcaaca 540



ataatgtgca agttattaaa gacatgagtg aattcgtgac agattgtcag aaaagaaaca	600
agagttttct acaacaaaaa actggcttat ggaacatata cttctgcttg agttgaatgt	660
gttggggctg agtgtaagaa aatgcaagct gcaaatctgg cttacatgtg gaaccaaagc	720
tggaatgng tgctttaaan gcaacttgta aaattggatt tcc	763

&lt;210&gt; 419

&lt;211&gt; 753

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 419	
ggactatttta cttttaaatgt aattatcaat acagtcgggt taaatctacc attttgttgt	60
tggttttctt tttgtttcat ttgttctctc ttcccttttt tcacctcttc aggattattt	120
tggattcact acttttttta nagngtcgtt ttaccactac tattggccta ttacctgtat	180
ctcttttttt taatggcatt tctctaggat ttacaatatg catcttttagc ttatagtatc	240
ttgaaatagt agngtaaac ttcaaaaata gagtaaaaac cttataatct tccatttttc	300
ccttccttct tttgtgctat tgatgacnca tatttactcc tacagatatt ataaacaaat	360
tgatatacnc acattatcat ttttgcttta catactcaat tatcttttaa ataaaaataa	420
aattgaggag aaaatccggt atattatcta cacatttact gtttccagca cttttcattt	480
ctttgngtag attcaaat ttgnatctt ccttttgccc aaagaacttc ttttcattct	540
tcttatagtt caggtctgct ggcaaccaat tagctcagcc tttggtttgc taaaaaagtt	600
catatattat cttgattttc aaatggnatt taagctctat ataggaattc ttaggtgact	660
ttaatccct catcattggg aagangtcat aaagggttg caaaggacta gaaatctgct	720
tacatttttt natttggtta tctttcttac cca	753

&lt;210&gt; 420

&lt;211&gt; 799

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 420	
gaaaaacgct ttgataccaa gaattaaaaa tgcttgctta caaacatctt cccttgcggt	60
tcgtgtaaat tcattagtgt gcttaggaaa gattttggaa tacttgata agtggtttgt	120
acttgatgat atcctaccct tcttacaaca aattccatcc aaggaacctg cggctctcat	180
gggaatttta ggtatttaca aatgtacttt tactcataag aagttgggaa tcaccaaga	240
gcagctggcc ggaaaagtgt tgctcatctt tattccctg agtattgaaa acaatcttaa	300
tcttaatcag ttcaattctt tcatttccgt cataaaaaga atgcttaata gattggagtc	360
tgaacataag actaaactgg agcaacttca tataatgcaa gaacagcaga aatctttgga	420
tataggaaat caaatgaatg tttctgagga gatgaaagt acaaatattg ggaatcagca	480
aattgacaaa gtttttaaca acattggagc agacctctg actggcagtg agtccgaaaa	540
taaagaggac gggttacaga ataaacataa aagagcatca cttacacttg aagaaaaaca	600
aaaattagca aaagaacaag agcaggcaca gaagctgaaa agccagcagc ctcttaaacc	660
ccaagtgcac acacctgttg ctactgttaa acagactaag gacttgacag acacactgat	720
ggataaatatg tcatccttga ccagccttcc tggtagtacc cctaaatctt ctgcttcaag	780
tctttcactt ctggtcctt	799

&lt;210&gt; 421

&lt;211&gt; 770

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 421	
gttcaatatg ggggacattc tggctcatga atctgaatta cttggactag tgaaagagta	60
tttagatttt gctgaatttg aagacacctt gaaaacattt tcaaaagaat gcaaaataaa	120
aggaaaaacca ttgtgtaaaa cagtaggcgg atctttcaga gactccaaat cattgacaat	180

tcagaaggat	cttgtcgtcg	catttgacaa	cggagaccag	aaggtgttct	tcgatctgtg	240
ggaggagcac	atttcaagtt	ccatccgaga	tggggactcc	tttgcccaga	agctggaatt	300
ctatctccac	atccattttg	ccatctatct	tttgaagtac	tctgtgggga	gaccggacaa	360
agaggagctg	gatgaaaaga	tttccctactt	caaaacctac	ctggagacca	aaggggcagc	420
cttgagccag	accacagagt	ttcttccttt	ctatgccctt	ccttttggtc	ccaaccctat	480
ggtgcacccc	tcattttaaag	aactcttcca	ggattcctgg	actccagagt	taaagttgaa	540
gttggaaaag	tttctagctt	taatatctaa	agccagcaac	acgccaaaagc	ttttaacaat	600
atataaggag	aatgggacan	agtaacaaag	aaatcttgca	gcagcttcac	cagcagctgg	660
ntgaagcttg	aaccgtagg	caatgacata	cctcaaacgg	naccataaga	tccaggcccg	720
actaccacaa	tctcantgga	gtcacagcan	aactggtggg	attctcttga		770

&lt;210&gt; 422

&lt;211&gt; 733

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 422

caaaaangaan	gctttatttt	gaattttaaa	aatacataca	tcttacactg	taatcaaaac	60
aaagcttaag	aaagtcaatt	cccgtctcct	ttagccctga	cttacactgg	gtaccctgtt	120
ctgtggccgc	cgggggtgac	ggncccttgc	aggggtcat	ccccgctcca	ctgcacatta	180
gccagccct	tccgccttgt	cttccccgng	ttggtcatga	tcccaggtga	ctccgnggtc	240
anaagcttct	ctcctgagag	ttctccgagc	tggggctgga	tcagttcgtc	tttgccana	300
tcggcttcca	tgatgtcatg	gncctcttca	tcattcttcat	cttcatcatc	atcagattca	360
agaacaccat	ctggtagctc	ttcggaaattt	agctgcttga	tgatgaattc	tatctggcgg	420
atcatttcag	cattgccttc	tttgatgaag	cagcgttaga	tgtcttccat	tccattgct	480
cttgcttcc	cacgaatgga	tggancagaa	aggatgctgt	acagagctcc	attcacatac	540
ggctgtatct	catggttttc	atggccaaga	agatccgaaa	ggactttgag	caccgagcc	600
tgccaccttg	gcacacatgg	tcttccctgn	gctgcggagg	gcagaggttc	atggagcaaa	660
agccaccgag	tactccaacg	gggnagccag	acagggcagn	cagggctcct	tcanaacatc	720
aaccagccc	gaa					733

&lt;210&gt; 423

&lt;211&gt; 862

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 423

catctgtcca	gggtgcatcg	agccgggagg	gctcaccagc	caggagcagc	acgccactcc	60
actccccctc	gcccatccgt	gtgcacaccg	tggctgcagag	gcctcagcag	cccatgaccc	120
atcgagaaac	tgcacctgtt	tcccagcctg	aaaacaaaacc	agaaagtaag	ccaggcccag	180
ttggaccaga	actccctcct	ggacacatcc	caattcaagt	gatccgcaaa	gaggtggatt	240
ctaaacctgt	ttcccagaag	cccccacctc	cctctgagaa	ggtagagggtg	aaagttcccc	300
ctgctccagt	tccttgtcct	cctcccagcc	ctggcccttc	tgtgttcccc	tcttccccca	360
agagtgtggc	tacagaagag	agggcagccc	ccagcactgc	ccctgcagaa	gctacacctc	420
caaaaccagg	agaagccgag	gctcccccaa	aacatccagg	agtgtgaaa	gtggaagcca	480
tcctggagaa	ggtgcagggg	ctggagcagg	ctgtagacaa	ctttgaaggc	aagaagactg	540
acaaaaagta	cctgatgata	gaagagtatt	tgaccaaaga	gctgctggcc	ctggattcag	600
tggaccccga	gggacgaagc	cgatgtgcgt	caggccagga	gagacggtgt	caggaaggtt	660
cagaccatct	tggaaaaaact	tgaacagaaa	gccattgatg	tccangtcaa	gtccaggtct	720
atgaacttca	agccaagcaa	ccnttgaagc	agatcaagcc	cctggaggca	atcatggaaa	780
aggggtgccg	ggcagcaaga	caagggcaag	aaaaatgctt	ggaaatggcn	gaagatcccc	840
acacnggaaa	ccagcaggcc	cg				862

&lt;210&gt; 424

&lt;211&gt; 859

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 424  
gagttatatt attactttat tttctttttt taaaatgtag cattaaagtc atccaacata 60  
cagatattcc tatggctcct ggcacatttt actctctcta aagtcaggta ttttaattat 120  
gagatgaaga aaatcatctc attaaaatgg caacatttct gataaatggt tcatatttat 180  
gtgatgggta attgactccc catctacccc tccagtcag agctacaaaa gacagtgcac 240  
aaccacagct aacagggtgt gggggtgccc aagtagacag ggctgcagaa caagcaacgg 300  
ggttaaactt ctcaaacaac aagcaacttc tttatttga cagagtaaga atatagaaga 360  
aaagcatcat tttctttttt agccctttta ttagtggttt gctccacccc aagttactgc 420  
ataccaagca gctaataaaa accaactgac ttaaagtctc tgaaatgcat gcaacttaaa 480  
attccctaaa gcacacatcg gttccgagtc tgatttttac agggcagagg ctacgggtgt 540  
gtgggttac caggggtgtc tggcatgtc ctggggtttg aagtcgctgc tgctgnggct 600  
tctggctgtc ggggttctgt gtgggatctc ttctgcatc ccagcatttt tcttgccctt 660  
ggctgctgcc acggnaccca tcttcatgaa tgcccgcaa tggtggacc tgnctcaaa 720  
gttgctgggg ctggagtcca ttagacctgg accttgccc tgggacatca aagggtttt 780  
tggcgaaggt tttccaaga agggcctgga accttctgga acanccgntt tttctgggccc 840  
tggaacgcnca attgggggtt 859

&lt;210&gt; 425

&lt;211&gt; 837

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 425  
cagaatggag gtggagtccc taaacaaaat gcttgaggag ctaagacttg aacggaagaa 60  
actaattgag gattatgaag gcaagttgaa taaagctcag tccttttatg aacgtgagct 120  
tgatactttg aaaaggtcac agcrttttac agcagaaagc ctacaggcca gcaaagaaaa 180  
ggaagctgat cttagaaaaag aatttcaggg acaagaagca attttacgaa aaactatagg 240  
aaaattaaag acagagttac agatgggtaca ggatgaagct ggaagtcttc ttgacaaatg 300  
ccaaaagctt cagacggcac ttgccatagc agagaacaat gttcagggtc ttcaaaaaca 360  
gcttgatgat gccaaaggag gagaaatggc cctattaagc aagcacaaaag aagtggaaag 420  
tgagctagca gctgccagag aacgtttaca acagcaagct tcagatcttg tcctcaaagc 480  
tagtcatatt ggaatgcttc aagcaactca aatgaccag gaagttacaa ttaaagattt 540  
agaatcagaa aaatcgagag tcaatgagag attatctcaa cttgaagagg aaagagcttt 600  
tttgccaagc caaaacccaa agtctggatg aagagcagaa gcnacagatt ctaagaactg 660  
ggagaagaaa gtaaatgaac caagagactc agcaggaata ttatgaaagg gaacttaaaa 720  
anctgcaagt agaattggaag aagaggggct taattaacga nggccattct aagacttttg 780  
gaagaattag cttggaacnc cttttggcaa ttgaacttgt cncaggtaat gccattt 837

&lt;210&gt; 426

&lt;211&gt; 724

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 426  
gattctaaca aaatttatta tgcagtaatt acaaagggtta aagactcttc catctcaa 60  
aaaaataaca gttataatta cacacataat atagtacctt atagaatgat tccaataaat 120  
atcacaggaa atacagtga ttttcaagtt ggagagacaa atactttctc attcacagt 180  
tttgacatag gaaagcctat ttacataaca atctgtataa agtcatgtc ttagtaacag 240  
tctatacaga gctgtgcca cacaattctt tcagaatgtg aagtaccggg caaaccactc 300  
ctggcgctgg ggatctggag aagccactgg agaagcttca ctctgagcag gactcaaaaa 360  
tgtcttgggc cctttagggtg gcaactggctg tggagtggt ttgctgctgt tgaactcaat 420  
atcgtggact ggagaattag gaatgggatc caggcggtta ggatgtccat tgcccactcc 480

WO 99/04265

```

accagattcc agagcactta nattgggaac actcacaac ctgtttgttg gtgatttatac 540
attcttcttc ttttgcttag ccaatggatt aataacacca acagtaggac ttgagttaaa 600
cactttgggtg aaagttagtt tctcgaattg actaattcca gctgataaaa cttattatcc 660
tcaattagtt tctttatgan ctgggcctct ttctgtaagc atggccttta attctggaat 720
catc 724

```

<210> 427  
 <211> 981  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 427
aaaaacaaaa taaaacaaaa aanaaaaant atatatatnt atatatatat atatatatatac 60
acacacacac acacaactca aagagttana atcattacnt ncaaatgaaa gtcgtaataga 120
tagatgatga tagntncaat gaanctgnga ncatanatta angaaacana naacantncn 180
aaaggtccac aaatctggtc ctatgaaaag agtaaaatta ccaagactng gtgaaaganc 240
ccannaaaaan ncanagagag anagagagag agagaganac anagagagag aganaaaagg 300
aaggcacacn taancnatat cagcaataaa angggnnact ttantacana ttctgcaanc 360
attannnnna taatganagg atattatgaa cagttgtatg gcnatatgtt tgaaaactta 420
gatgccgata tgtttgaaaa cttaaatgaa acggaaaaat tccttgaaga accacaantt 480
aaatttgaca caggttagaaa atntgaatgc agttingncct tcagtatctg tggggaaatc 540
ggttncagaa ccactcccc antaccnaaa tttataattg ctcaagttcc tgatataaaa 600
tggcaaagta tttgcatata ncctatccct acccttttac atactttaaa taacctntga 660
gttncttnat tatacctaac ataatgtaca tttctgtggc aaatcgntnn taatattgga 720
ttttnaaaat tatnttantt ttggaatagg nngtantatt tcctggggct tttttttcc 780
ccaaatatatt tntaattccc caattnggtt ggaatcttgg gaaccccatg gnggggancc 840
catangattt tgggaanggn ccaacttggg gccttngtaa ctttttaaaag aaatngggaa 900
ttctttgntn aanaattctt ncncccaaaag aaaacccctt tggcccccana agttntttna 960
aatgggggaaa tttncccaaa c 981

```

<210> 428  
 <211> 655  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 428
ataggacaac atgaacattg ttgagtcact gaagctaaac caaacttgct tttctgtaat 60
aaacccaatt tggcatgat ttaatatatt ttggatcgct ctggatttgg tttgctaata 120
ttttattcat ccaagaaata ttcattagag aaattggcat gggatttttt tttcattgta 180
atgtccttgt caggtatcaa ggctttttca gctgataaa gcatattaag aaatgcttcc 240
tcttttccta ttctctggaa aagattgtgt aatattgctg ttactacttc ctgtaatgtt 300
tggtgaaatt cacaattgaa gacatctggg cctagcgtgt tctttgtagg aagaatatta 360
agaaagaatt ccatttcttt aaaagttacg agcacagttg gccttcaga tctatggatc 420
ccacatgagt tccagattca accaattgtg tattaataat atttgggaaa aaaagccaca 480
agaaataata caactatata aaataatata atttttaaaa tacaatataa caacgattta 540
cacagaatgt nccattatgt taggnattat aagtaactca gaggntattt aaagnatgtg 600
agagggnatg gataggctat atgcccataa ctttgccant cttatantca gggaa 655

```

<210> 429  
 <211> 788  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 429
gagcagcaga gatttttggc gtgagaatta attaccagta acagttcaat atggggggaca 60

```

ttctggctca tgaatctgaa ttacttggac tagtgaaaga gtatttagat tttgctgaat	120
ttgaagacac cttgaaaaca ttttcaaaag aatgcaaaat aaaaggaaaa ccactgtgta	180
aaacagtagg cggatctttc agagactcca aatcattgac aattcagaag gatcttgtcg	240
ctgcatttga caacggagac cagaaggtgt tcttcgatct gtgggaggag cacatttcaa	300
gttccatccg agatggggac tcttttggcc agaagctgga attctatctc cacatccatt	360
ttgccatcta tcttttgaag tactctgtgg ggagaccgga caaagaggag ctggatgaaa	420
agatttccta cttcaaaacc tacctggaga ccaaaggggc agccttgagc cagaccacag	480
agtttcttcc tttctatgcc ctctcttttg ttcccaacc tatggtgcac cctcatttta	540
aagaactctt ccaggattcc tggactccag agttaaagtt gaagttggaa aagtttctag	600
ctttaatatc taaagccagc aacacgccna agcttttaac aatatataag gagaatggac	660
aaagtaccaa gaaatcttgc agcagcttca ccacagctgg ttgaagctga acgtagggtca	720
gngccttctt taaacggggc aattaagaat ccaggccgac taccacaatc ttantggggg	780
tcccagca	788

<210> 430  
 <211> 655  
 <212> DNA  
 <213> Homo Sapiens

<400> 430	
caaaatgaat gctttatttt gaattttaaa aatncatacn tnttaenctg naatcaaaac	60
aaagcttaan aaagtcaatt cccgnttcct ttanccctga cttacnctgg gtncccgttt	120
ntggggccnc cggggngac gggcctttgc aggggctcat ccccgnctcca ctggacatta	180
nccagccctt tccgcttgg ctctcccgng ttggtcatga nccccaggtn ctccgnggtc	240
aaaagcttnt ntccgtgaaag ttctccganc tggggctgga tcanttcgtc tttgnccaaa	300
ncggnntcca tgatgncatg ggcctnttca tcatcttcat tttcatcatc atcanattca	360
anaacnccat ntggnanctt ttccggaattt aactgcttga tgangaattc tatntggngg	420
ancatttcag cattgccttn ttggaagaac cancgtagga nggtttccat tcccattggg	480
nttgnttcct cacgaatgga tggaaacanaa aggatgctnt acananctcc attcacatac	540
ggntgnatnt catggnnttc atggccaana anaatcccaa aggcctttgag cccaggntcg	600
gcccttggca caaatgtnt tcttggtctc cgaaggccaa ggttcattga ccaaa	655

<210> 431  
 <211> 844  
 <212> DNA  
 <213> Homo Sapiens

<400> 431	
ggaagaagga agaggtaact ataactacc aatattgcag ccatggagtc catgcttaat	60
aaattgaaga gtactgttac aaaagtaaca gctgatgtca ctagtgtgt aatgggaaat	120
cctgtcacta gagaatttga tgttggtcga cacattgcca gtggtggcaa tgggctagct	180
tggaagattt ttaatggcac aaaaaagta acaaagcagg aagtggcagt ttttgcctt	240
gataaaaaac tgattgacaa gtatcaaaaa tttgaaaagg atcaaatcat tgattctcta	300
aaacgaggag tccaacagtt aactcggctt cgacaccctc gacttcttac tgtccagcat	360
cctttagaag aatccaggga ttgcttggca tttgtacag aaccagtttt tgccagtta	420
gccaatgttc ttggttaactg ggaaaatcta ccttccccta tatctccaga cattaaggat	480
tataaacttt atgatgtaga aaccaaata ggtttgcttc aggtttctga aggattgtca	540
ttcttgcata gcagtgtgaa aatgggtgca tggaaatata actcctgaaa atataatttt	600
gaataaaaagt ggagcctgga aaataatggg ttttgatttt tngntatcat caaccaatcc	660
ttctgaacaa gagcctaaat ttcttgtaa agaatgggac ccaaatttac cttcattgng	720
tcttncaaat cctgaatatt tggcttctga atcctacttt ctgngaactt gtgaaaccag	780
ccagtggata tgggattcnt ttaggaactg gtatggaatg ccgggatttt aataaaaagg	840
gaaa	844

<210> 432

<211> 807  
 <212> DNA  
 <213> Homo Sapiens

<400> 432  
 atcaaagcta aaattttatgt ggtgcatact cctcttgata tcaggtatgt tcgcatatac 60  
 ctttttcttt catgtgtaaa aacaaccatg tgaggatattt tacaggtcaa aagaaaaaca 120  
 aaactacttc cttattcagt gtaaaggagg cttataagca ttccaaaata aaaacaaaca 180  
 aaaaccagac aagtacatag tctatttcca tttcctttta tacatcctct ctatatatca 240  
 cacatttagc aataggagaa tagagaacta attcaaatgc aagggaatct tttttgtaga 300  
 ttctgttgac agatgctcct taacctaaac attttctact ctaaacataa cggacttaat 360  
 tgtcttcagt acgtgaaata attttaaggt gatctagtag tttgaaaatt tcattcactt 420  
 aagaacactt aagctgaaaa atagcactat ttttcagagg caatttctca acagaaaaag 480  
 gcaatggtaa cagttcaatt gatggaaatg gttgaaataa aatacctgaa gtagaaaaaa 540  
 ggtgtaggaa caattttgta aaaacatagc accattacct caacgaatga acaaatttta 600  
 catactggat ttttttcaa tgacttattt tcatatttag tagttcaagg tctataagct 660  
 ggtatattaa gctttctttc tggtaagag ntcaacactt acatcatggt attttacnaa 720  
 attaaaaacc aattttctta ataaaccgng gctcctaaaa tggtagcaag gaaaaattct 780  
 tcaataccta atttaattcc ataagga 807

<210> 433  
 <211> 866  
 <212> DNA  
 <213> Homo Sapiens

<400> 433  
 cttcagccca gatgcagaat gggggccctt ccacaccccc tgcatacccc cctgcagatg 60  
 gctcacctcc attgcttccc cctggggaac ctccccgtt agggaccttt ccccgggacc 120  
 acacctcttt ggcactagtt cagaatgggt atgtgtcggg cccctctgcc atactcagaa 180  
 caccagaaaag cacaaaaacc ggtcctgttt gtcagccacc agtgagtcag agccgctccc 240  
 tgttttcttc tgtcccgtec aagccaccaa tgtctctgga gcctcaaaat gggacgtatg 300  
 caggaccagc gccagcattc cagccatttt tcttcaactg agcatttcca tttaatatgc 360  
 aagagctggt actcaagggt agaattcaga acccatctct tcgagaaaaat gatttcattg 420  
 aaattgaact ggaccgacag gagctcacct accaagagtt gctcagagtg tgttgctgtg 480  
 agctgggtgt taatccagat cangtggaga ngatcagaaa gttacccaat actctgttaa 540  
 ggaaggacaa ggatgttgtc cgactccaag atttccagga gctggaactg gttctgatga 600  
 taagtgaaaa taattttctg ttcanaaatg ctgcatccac actgactgaa aggccttgct 660  
 ataacaggag agcttcaaaa actgacttac taatgcacag ggacttttat cactggagta 720  
 ttatgacagt gngcatcacc ttntgggccc aaggaccaag ccattggtct aaaaggcctc 780  
 aaaatgcccc ggganggcct ctggtggcca tggcattagt atatactaac catcattctg 840  
 gccaggtatg gaagccctg gacccc 866

<210> 434  
 <211> 764  
 <212> DNA  
 <213> Homo Sapiens

<400> 434  
 caaaataacc tttatttttg atacaaaaat aaagatgcta actccttttag ctcagtttcc 60  
 cacaataacc tttaaaatag caacagattc agtctcaaaa attgcttttc atttgtagtg 120  
 gaaaatgaaa gtggagaaca tggaacagca atatttgngc tcttctcata ggatgcagtt 180  
 acacacacat atgactggaa tcaacttcaga gtaaaaaaaa agtgggctgg gtgcagtggc 240  
 tcacacctgt aatcccagca ctttgggagg ccaaggacag gagcatcact taaggccaga 300  
 agtttgagac cagcctgggc cacatagtga gacctgtct ctatgggcgg ggtgggggtg 360  
 gggggcattg taaaaaagca gttgttcttt tanaaggcat cagagagccc tntagtgacc 420

acgaagggga	gttaatgcag	agatgactcg	agacagagaa	gcagtcatga	gtgtttacaa	480
aggaaaaagt	gagggagga	aagctctttt	ggtaacagc	atatttacaa	ttagttaact	540
gnattcttaa	atacttttaa	cctgagtaac	atttataaat	atgttatagg	aaacctcaca	600
gtcacaaagtc	acactagaat	ccatctgtcc	agtatctggg	ctttcccccac	accagaatcc	660
atctgtccag	tatctgggct	ttcccagtc	ttcctcttct	cataagttcc	caanggcagc	720
anaagtgtga	agcatgcaca	ccaaggaaaa	acgcattcca	gccc		764

<210> 435  
 <211> 834  
 <212> DNA  
 <213> Homo Sapiens

<400> 435						
agattttgtt	aattttccta	caaaaaatgg	atttgtact	aacaaaaacc	cctcctgatg	60
agataaagaa	cagtgttcta	cccattggtt	acagagcact	agaagctcct	tccattcaga	120
tccaggagct	ctgtctaaac	atcattccaa	cctttgcaaa	tcttatagac	tacctatcca	180
tgaaaaacgc	tttgatacca	agaattaaaa	atgcttgtct	acaaacatct	tcccttgagg	240
ttcgtgtaaa	ttcatttagt	tgcttaggaa	agattttgga	atacttggat	aagtggtttg	300
tacttgatga	tatcctaccc	ttcttacaac	aaattccatc	caaggaacct	gcggtcctca	360
tggaatttt	aggtatttac	aaatgtactt	ttactcataa	gaagtgggga	atcaccaaag	420
agcagctggc	cggaaaagt	ttgcctcatc	ttattccct	gagtattgaa	aacaatctta	480
atcttaata	gttcaattct	ttcatttccg	tcataaaaaga	aatgcttaat	agattggagt	540
ctgaacataa	gactaaactg	gagcaacttc	atataatgca	agaacagcag	aaatcttttg	600
atataggaaa	tcaaatgaat	gtttctgagg	agatgaaagt	tcaaatattg	ggaatcagca	660
aattggcaaa	gtttttaaca	acattggagc	agacctntg	actggcagtg	agtccgaaaa	720
taaagangac	gggttacaga	ataaccttaa	aagagcatcc	ttaccacttg	gaggaaaaac	780
caaaatttgc	caaaagaacc	aggaccggcn	cgaagctgg	aaaagccgca	ggct	834

<210> 436  
 <211> 812  
 <212> DNA  
 <213> Homo Sapiens

<400> 436						
acagaagtaa	agttttattac	atttgaacaa	atacagcaga	aacctcaaaa	gtttactcat	60
aaatatagtt	taattcttac	aaatcttctt	ttgaaaatgc	aattcatata	tgctgcaacc	120
tcagaagttt	gaatttgaaa	tgaaatatga	aggtagtagt	caggggaagtc	acatcagagt	180
gccttgctca	atatccaaac	aaatcagcac	atacctcttc	cttgatacag	gaggaaaaaa	240
gtgattctaa	atatatccaa	gtgaatgcag	aaaaatacat	tactatttga	ggcagaccat	300
gctaaaatat	aatttacaat	gattagtttg	cacttaagat	ggttaataac	gcatttaaac	360
caatgaaatg	aagggttaagt	tgaattttgt	agtatttgct	cagtctctgt	actaaacaat	420
agttcatctg	aaaagtgttg	aaaaagcaaa	taacctgata	cttctcttta	tgcttatcat	480
tttctcactg	tcattcttaa	tgcaaacaaa	tcaatacagc	atcaagattt	tttcatattt	540
aaaatgaaga	ctaatactgc	atagactgng	taccatatag	tacttaatat	atgagcttgc	600
aatgaccatc	acctcaattt	tttaataaac	accaagatcc	acaagccaaa	ataaacattt	660
gattaaaaag	ttatggtatt	caagataact	cagtttcctt	tttctctttg	agattgggna	720
anggctgggt	ctttaaaaaa	ccctggaaaa	gggagttggg	taaagaggga	aaaaaatcct	780
tcaangcttt	taaaaaaact	tcnactgggt	ta			812

<210> 437  
 <211> 842  
 <212> DNA  
 <213> Homo Sapiens

<400> 437

gtggaagagg	cgtacctatt	tgcaaagtgc	agagcaggca	tggattgcc	attctggaac	60
agagcaaagc	cccaacttgc	cctccactgg	tgatgtcaca	cccacccatg	aagagcctgc	120
ctctagggtt	gttgaatgtt	gggtcacgaa	gatctcaacc	tggccaaaga	agagaaccca	180
gaaagatcat	cacagtttct	gtaaaagaag	atgtacacct	gaaaaaggca	gaaaatgcct	240
ggaagccaag	ccaaaaacga	gacagccaag	cggatgatcc	cgaaaacatt	aaaaccagg	300
agcttttttag	aaaagttcga	agtatcttaa	ataaattgac	accacagatg	ttcaatcaac	360
tgatgaagca	agtgtcagga	cttactgttg	acacagagga	gcggctgaaa	ggagtatttg	420
acctgggtctt	tgagaaggct	attgatgaac	ccagtttctc	tgtggcttac	gcaaacatgt	480
tccgatgtct	agtaacgctg	aaagtaccca	tggcagacaa	gcctggtaac	acagtgaatt	540
tcgggaagct	gctactgaac	cgttgccaga	aggagtttga	aaaagataaa	gcagatgatg	600
atgtctttga	gaagaagcag	aaagaacttg	aggctgccag	tgctccagag	gagaggacaa	660
ggcttcatga	tgaactggaa	gaagccaagg	acaaaagccc	ggcggagatc	cattggcaac	720
atcaagttta	ttggagaact	cttttaaact	caaaatgctt	gacttgaagc	catcattgca	780
tgactgtgtg	gtgaagctgc	ttaagaaccn	ttgatgaaga	atccctggaa	tggcctgtgt	840
cg						842

&lt;210&gt; 438

&lt;211&gt; 678

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 438

aaactngcan	tgntgtntt	tattttgtnc	tttatatttt	caaagngaaa	agaaatanna	60
ctgagncaat	ntctttttgt	ntttttaaan	atttgtntca	tgtatttaca	ngccttaaag	120
nngctctaaa	gatntcaaga	gnattaanag	nactttnttc	agggnagcac	tnnttttttt	180
ttaaacantt	nttggngttc	tgtggnccac	annatttcc	tntgtntcaa	ngtnatgtat	240
gtnttgatna	cnatngngat	nttttaaan	ttntgaanca	agctgagagg	cnngcanaaa	300
gatntgancg	cnmaaaaaaa	aaaatctttn	ttaccctgtt	caccccaaac	tttttcaaat	360
ctggnctaaa	tgctntacct	taaaacanac	atgaggggca	tcttgaagg	gagggaaant	420
tatttctctg	cntttctatn	atacangtng	ttacanaaaa	ctgngaatta	naaaattaca	480
ctggnatttg	cngaccttaa	aataaattaa	aagtntcaa	ctnttttttt	ttttgntaaa	540
cnttttttta	agnatgann	cntgggttaa	aagaaaagnt	ttaaaccgaa	aatattttct	600
ataaataata	cctggatttt	ggnnttaggg	cccccgccct	aaggnttgna	ggttactttt	660
ntccnangac	ctttttcc					678

&lt;210&gt; 439

&lt;211&gt; 826

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 439

gaccctttac	caacaaatga	aatgatgat	gatatatgca	agaaaccctg	tagtgtagca	60
cctaatagata	ttccactgg	ttctagtact	aacctaatta	atgaaataaa	tggagttagc	120
gaaaaattat	cagccacgga	gagcattgtg	gaaatagtaa	aacaggaagt	attgccattg	180
actcttgaat	tggagattct	cgaaaatccc	ccagaagaaa	tgaactgga	gtgtatccca	240
gtcccatca	ccccttcac	agttccttcc	tttcttcaa	ctcctccaac	tcctccagct	300
tctctctctc	acaactccag	cattgttcc	gctgctgcca	ctactgttag	ttctccgagt	360
gctgccatca	cagtccagag	agtcctagag	gaggacgaga	gcataagaac	ttgccttagt	420
gaagatgcaa	aagagattca	gaacaaaata	gaggtagaag	cagatgggca	aacagaagag	480
atthttggatt	ctcaaaactt	aaattcaaga	aggagccctg	tcccagctca	aatagctata	540
actgtaccaa	agacatggaa	gaaacaaaaa	gatcgacccc	gaaccactga	agagatgtta	600
gaggcagaat	tggagcttaa	agctgaagag	gagctttcca	ttggcaaagt	acttgaatct	660
gaccaggata	aatgagcca	ggggtttcat	cctgaaagag	acccctntgg	cctaaaaaaa	720
gtgaaaagct	gtggaagaaa	atggagaaga	actgagccag	accgtaatgg	ggcctgaaag	780
ggttctgang	gtgaaggaat	agatgcttaa	ttcangcttc	cccaga		826



<210> 440  
 <211> 689  
 <212> DNA  
 <213> Homo Sapiens

<400> 440  
 aaatatttgt tctatgtatt tacaagcctt aaagttgctc taaagatttc aagagtatta 60  
 agagtacttt tctcagggtg gcaacttttt ttttttaaac aattcttgga gttctgtggt 120  
 ccacagcatt tccttctgtt tcaatgttat gtatgttttg attactattg tgatttttta 180  
 aattttctga agcaagctga gaggcaggca gaaagatttg atgccaaaaa aaaaaaatc 240  
 tttcttacct tgttcacccc aaactttctc aaatctggac taaatgctat accttaaac 300  
 aaacatgagg tgcattctga aggggaggga aatttatttc tctgcttttc tattatacaa 360  
 gttgtttaca gaaactgcaa attaaaaaat tacactggca tttgcagtcc ttaaaataaa 420  
 ttaaaagtgc tcaacttttt ttttttgcta aacatttttt taagtatgag tccttgttta 480  
 aaaagaaaag attaaaacag aaaaatatttt ctataaataa tacatgtatt ttggtttttag 540  
 tgctcccgcc ctaaggtttg aagtttactt ttatccagta cctttttcct ccatgatcac 600  
 ctttttttct ctttccctn ttccactcgg gcacacgtgg ggggtttctg cnanaattgg 660  
 ccttgctgca ctgngaattgg gcnaaaacc 689

<210> 441  
 <211> 883  
 <212> DNA  
 <213> Homo Sapiens

<400> 441  
 ctttttatcc tggaccagga cctggggact tccccaatgc ttatggaacg cttttttacc 60  
 caagtacgcc ggtgtatcag tcagcaccta tcatagtgcc tacgcagcaa cagccgcctc 120  
 cagccaagag agagaaaaaa actataagaa ttcgggatcc aaaccaggga ggtaaagaca 180  
 taacagagga gattatgtct ggaggtggca gcagaaatcc tactccacc ataggaagac 240  
 ccacgtccac acctactcct cctcagcagc tgcccagcca ggtccccgag cacagccctg 300  
 tggtttatgg gactgtggag agcgtcatc ttgctgccag caccctgtc actgcagcta 360  
 gcgaccagaa gcaagctcaa atagctataa ctgtaccaa gacatggaag aaacccaaaag 420  
 atcggaacctg aaccttgaa gagatgttag aggcagaatt ggagcttaa gctgaagagg 480  
 agctttccat tgacaaaagta cttgaatctg aacaagataa aatgagccag gggtttcac 540  
 ctgaaagaga cccctctgac ctaaaaaaag tgaaagctgt ggaagaaaat ggagaagaag 600  
 ctgagccagt acgtaatggt gcttgagagt gtttcttgag ggtgaaggaa tagatgctaa 660  
 ttcaggcttc acagatagtt ctggtgatgg gggtacattt ccatttaaac cagaatnctg 720  
 gaagcctact ggtacttgaa ggtaagaaca gtatgaccag ggagtttctg gtggactttc 780  
 cagttcatgc ctggctgnat tccaaaancc naaggccctg gcttctatta anggatgngg 840  
 ttnttgacag gatcaaccaa ncccaaatgg ccaatgggga act 883

<210> 442  
 <211> 777  
 <212> DNA  
 <213> Homo Sapiens

<400> 442  
 gctaaacatt tttttaagta tgagtccttg tttaaaaaga aaagattaaa acagaaaata 60  
 ttttctataa ataatacatg tattttgggt ttatgtctcc cgcctaagg tttgaagttt 120  
 acttttatcc agtacctttt tcttccatga tcaccttttt ttctctttcc cctctccac 180  
 tcgtgcacac gtgggggttt ctgcgagaat tggccttgct gcaactgtgat tggcgaagac 240  
 gtgaaacttt ttaaaaaaat acttaaatg tttcttttgt ttcattttgt gtatttgaa 300  
 ttttagttat cctcagactc ctcttctgct tcccgcagcc acgtgaagaa tgccgtgaca 360  
 gatttcagag ccacgccctt cccattctgc tctgcagggt ccttgctgct ctcccattg 420  
 tagaaggcat cctcgagat cacctcctcg tcatatagac aatcaaaaaa catccgcagc 480

aaattggcag	gttgatcaag	ttttactatc	gatgcttgta	gtgcataaag	tgcttgacgt	540
tccttctctg	natctgagtc	taggtacttg	agtaagatcg	gcactctctg	cttgaaacag	600
cagtgtocac	ttcttgaang	tagaagaagt	cggctattaa	tagctggttt	acaaacagca	660
gtcatttaaa	gctctaagga	atggtaggtg	aactcntctg	ggatttcggc	taagaataag	720
ccctttancc	aggccaaaga	acctgggtcan	tcaattcgct	tttggccctc	caataaa	777

&lt;210&gt; 443

&lt;211&gt; 875

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 443

taacacagtg	aatttccgga	agctgctact	gaaccgttgc	cagaaggagt	ttgaaaaaga	60
taaagcagat	gatgatgtct	ttgagaagaa	gcagaaagaa	cttgaggctg	ccagtgtctc	120
agaggagagg	acaaggcttc	atgatgaact	ggaagaagcc	aaggacaaag	cccggcggag	180
atccattggc	aacatcaagt	ttattggaga	actctttaa	ctcaaatgc	tgactgaagc	240
catcatgcat	gactgtgtgg	tgaagctgct	aaagaacct	gatgaagaat	ccctggagt	300
cctgtgtcgc	ctgctcacca	ccattggcaa	agacttggac	tttgaaaaag	caaagccacg	360
tatggaccag	tactttaatc	agatggagaa	aattgtgaaa	gaaagaaaaa	cctcatctag	420
gattcggttc	atgcttcaag	atgttataga	cctaaggctg	tgcaattggg	tatctcgaag	480
agcagatcaa	gggcctaaaa	ctatcgaaca	gattcacaaa	gaggctaaaa	tagaagaaca	540
agaagagcaa	aggaaggtcc	agcaactcat	gaccaaagag	aagagaagac	caggtgtcca	600
gagagtggac	gaaggtgggt	ggaacactgt	acaaggggcc	caagaacagt	cgggtactgg	660
accctcaaaa	antcctaaaa	atcactaagc	ctacaattga	tgaaaaaant	cactggacct	720
aaagccagct	aggcagctgg	ggaaaaggca	gcagtgggtg	accaangcaa	gtgaaactga	780
gcentacggc	aagtgtcttc	agttaaacag	atctntgncc	tgaaccttca	gaaccttang	840
gtcccgccat	cacgcctgta	aagttggatt	cccga			875

&lt;210&gt; 444

&lt;211&gt; 756

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 444

cttttaaaact	tgcaatgntt	gnctttat	tggtctttat	atcttcaaag	ngaaaagaaa	60
tagtactgag	tcaatttctt	tttggtttt	ttaaattttg	gtctatgnat	ttacnagcct	120
taaagttgct	ctaaagattt	caagagtatt	aagagtactt	ttctcaggg	agcacttttt	180
tttttttaaa	caattcttgg	agttctgngg	nccacagcat	ttccttctgn	ttcaatgnta	240
tgatgtttt	gattactatt	gggattttt	aaattttctg	aagcaagctg	anaggcaggc	300
ngaaagattt	gatgccnaaa	aaaaaaaaa	aatctttntt	accttgggtc	ccccaaactt	360
tntcaaactt	ggactaaatg	ctatacctta	aaacaaacnt	gaggggcatn	ttgaaggggga	420
gggaaattta	tttctctgnt	tttctattat	acnagttgnt	taccgaaact	gnaaatttaa	480
aaattaccct	ggcntttgca	ggccttaaaa	taaattaaaa	gntctcaact	tttttttttt	540
gccaaacatt	tttttaagta	tgagnccttg	nttaaaaaaga	aaagattnaa	nccgaaaata	600
ttttctataa	ataatacntg	nattttgggt	ttaaggctcc	cgccttaang	nttgaagggt	660
acttttatcc	nagnnccctt	tttccctcca	tgaanacccc	tttttttcnc	ctttcccttt	720
ttcccaactn	gggccccccc	tngggggggt	tttgcg			756

&lt;210&gt; 445

&lt;211&gt; 783

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 445

cagaaaaatgg	tgcttaccaa	ctacatgttc	cctcaacagc	caaggactga	ggatgttatg	60
-------------	------------	------------	------------	------------	------------	----

tttatatcag	ataatgaaag	ttttaaccct	tcattgtggg	aggaacagag	gaaacagcgg	120
gctcaagttg	cattttgaatg	tgatgaagac	aaagatgaaa	gggaggcacc	tcccagggag	180
ggaaatttaa	aaagatatcc	aacaccatac	ccagatgagc	ttaagaatat	ggtcaaaact	240
gttcaaacca	ttgtacatag	attaaaagat	gaagagacca	atgaagactc	aggaagagat	300
ttgaaaccac	atgaagatca	acaagatata	aataaagatg	tgggtgtgaa	gacctcagaa	360
agtactacta	cagtaaaaag	caaagttgat	gaaagagaaa	aatatatgat	aggaaactct	420
gtacagaaga	tcagtgaacc	tgaagctgag	attagtcctg	ggagtttacc	agtgactgca	480
aatatgaaag	cctctgagaa	cttgaagcat	attgttaacc	atgatgatgt	ttttgaggaa	540
tctgaagaac	tttcttctga	tgaagagatg	aaaatggcgg	agatgcgacc	accattaatt	600
gaaacctcta	ttaaccagcc	aaaagtcgta	gcacttagta	ataacaaaaa	agatgataca	660
aaggaaacag	attctttatc	agatgaagtt	acacacaata	gcaatcagaa	taccagcaat	720
tggtcttctc	catctcggat	gtctgattca	gttctcttaa	tactgatagt	agtcaagaca	780
cct						783

&lt;210&gt; 446

&lt;211&gt; 866

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 446

agattacaac	acacatacaa	taagtgaatt	ttatcaaaat	acagcacatt	tcttctacta	60
tatccataaa	aatcaattcc	tatgtaaata	gtactgaaaa	tcaactaaaa	tgagttaaaa	120
tttacaaaga	ggtgttaaag	ggtttcaatc	aaaattatta	aaactataca	gtacaataac	180
caattgataa	catcttgaaa	gaagtgcatt	atttgagttc	acatatTTTT	aaaagtgtctg	240
cctacttact	ctgactagca	agaatggaaa	gtgagtccaa	ctcacttttg	caaaaataat	300
gttggttggt	gttttaagct	agtcttataa	aagtcttaat	taaaatcaag	gttgataaac	360
aaagcataac	agattaaaaa	ttcccaaatt	gcatttctta	gtaaataaaa	atgaagtgc	420
ataaccaaat	attgctctaa	tgaaggttc	cagactagcc	tcaactaaac	agttattggt	480
cttctatggc	acttttttct	ggtccaaata	accatgcatt	aatccttacc	attacatggt	540
actcaaattt	tatttgatta	catagaacaa	aaacaaataa	aattaatggt	ctggataaac	600
aaaattaata	aacctctatc	atcaaataat	tgttacagta	actaggaaca	aagaaaggca	660
gtttggtggg	taaaacacta	ttacactgat	ccccatagga	aacccttcta	aagactctgg	720
aagtgttgag	ttcacattta	atggtacctg	tagaaacagn	cctttatttg	gacaccttta	780
cccactggca	ngccctaang	gacccatccc	tttgctctat	aacttttcac	aagcaattct	840
ctaactcctg	gccagtttnc	aaaagc				866

&lt;210&gt; 447

&lt;211&gt; 789

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 447

gtcacgttgg	aatgcaaatt	gagcacatca	ttgaaaacat	tgttgctgtc	accaaaggac	60
tttcagaaaa	attgccagag	aagtgggaga	gcgtgaaact	cctgtttgtg	aaaactgaga	120
aatcggtctg	acttcccatc	ttttcctcgt	ttgtcagcaa	ttgggatgaa	gccaccaaaa	180
gatcctttgct	taataagaag	aaaaaagagg	caaggagaaa	acgaagagaa	agaaattttg	240
aaaaacaaaa	ggagaggaag	aagaagaggc	agcaggctag	gaagactgca	tcagtcttta	300
gtaaagatga	tgtggcacct	gaaagtgggt	atactacagt	gaagaaacct	gaatcaaaga	360
aggaacagac	cccagagcat	gggaagaaaa	aacgtggcag	aggaaaagcc	caagttaaag	420
caacaaatga	attccgaagac	gaaatccac	agctgggtacc	aataggaaag	aagactccag	480
ctaataaaaa	agtagagatt	caaaaacatg	ccacaggaaa	gaagtctcca	gcaaagagtc	540
ctaactccag	cacacctcgt	gggaagaaaa	gaaaggcttt	gccagcatct	gagaccccaa	600
aagctgcaga	gtctgagacc	ccagggaaaa	gccagagaa	gaagccaaaa	atcaaagaag	660
agcagtgaag	gaaaaaagtc	cttcgctggg	gaaaaaagat	gccgaagaca	gacttcaaaa	720
aagccagang	ccaggttttc	ccactcctag	taaatctgtg	agaaagcttt	ccacaccccc	780

WO 99/04265

789

aaaaaatgg

<210> 448  
 <211> 820  
 <212> DNA  
 <213> Homo Sapiens

<400> 448  
 caggattact tatggagggtt ttattatttn tatttatttt tgagactgag tcttgctctg 60  
 tcatcaggct ggagtgcagt ggctcactgc aacctecgcc tcccagggttc aagcaattct 120  
 cctgcctcag cctccctagt agctgggatt acagggtgtcc accaccatgc ccaattaatt 180  
 tttgtatttt tgggtacagac aggggtttcac catgttggtcc aggatggtct cgatctcgtt 240  
 gaccttgtga tccgcctgcc tgggcctccc aaagtgtctgg gattacaggc gtgagccacc 300  
 gcccctggac tacttatgga ggttttaaaa aatcttttaa gtccaggcct gacgtttaga 360  
 gaaggttaca aaggcggcca ggatctgagt atttccaaaa agctctggag gcagcattga 420  
 gggttccttc cagtgaatc actgacttta ggtcgactgg ggtactttgg gttttttggg 480  
 ccattttttg ggggtgtggg aagcttttct cacagattta ctaggagtgg tgaaaaactt 540  
 ggctctctgc ttttttggag tctgtctcgc atcttttttc cccagcgaag gacttttttc 600  
 ctctactgcc tcttctttga tttttggctt ctctctctgg gcttttccct ggggtctcag 660  
 actctgcagc tttttggggg tcttcaanat gctggcaaaa gccttttctt ttcttccac 720  
 gagggggngc ctgggggatta ggactctttt gctggggana cttcttttct tnggggnang 780  
 tttttgaaac nntacttttt ccaatttagc ctggaggcct 820

<210> 449  
 <211> 936  
 <212> DNA  
 <213> Homo Sapiens

<400> 449  
 aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcattacc 60  
 aaaaaaatat taatagtttg caggaagagc ttttacagtt gaaagctata caccaagaag 120  
 aggtgaaaaga gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcagagataa 180  
 ataagttgaa cgagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaaagaaca 240  
 tccagaagaa atatgaatgt gagttagaaa atttaaggaa agccacctca aatgcaaacc 300  
 aagacaatca gatatgttct attctcttgc aagaaaatac atttgtagaa caagtagtaa 360  
 atgaaaaagt caaacactta gaagatacct taaaagaact tgaatctcaa cacagtatct 420  
 taaaagatga ggtaacttat atgaataatc ttaagttaaa acttgaaatg gatgctcaac 480  
 atataaagga tgagtttttt catgaacggg aagacttaga gtttaaaatt aatgaattat 540  
 tactagctaa agaagaacag ggctgtgtaa ttgaaaaatt aaaatctgag ctagcagggt 600  
 taaataaaca gttttgctat actgtagaac agcataacag agaagtacag agtcttaagg 660  
 aacaccatca aaaagaata tcagaactaa atgagacatt tttgtcagat tcagaaaaag 720  
 gaaaaattaa cattaatggt tgaaattcaa ggtcttaang gacagtgtga aaacctaccg 780  
 ccaggaaaag caagaagcca ttttaaannt ntgagagntt acccagagga ttttggaaat 840  
 ttcccaancn gaactggggg gaatctgctg ggaaaaatag gtcaggaggt cgaatcatgg 900  
 aaccaccagc aggcctttga ngtcatgacc tgagca 936

<210> 450  
 <211> 806  
 <212> DNA  
 <213> Homo Sapiens

<400> 450  
 aactcaaaac agtggttaagt tcctatgctg ttagtactgt atcttgtcca cacctcaaac 60  
 aacagtgaga tctctgagca catgggtctgt acctcaacca cttttctatc accagggtct 120  
 agaatagttg ggcattttaa taaaatttgc taaatgaatg aaaaatccaa aataaatcat 180

gaagccattt ataaatcaca ccaatcttgc ttgggttaaa caatagaaag taacactttt	240
gaaagagaag gcaaacaggt gttagagggg caagaatgtg agctcgagga aaagacagct	300
acgaactgtg tttttaacaa ctcatattt ggctactata tttcccaatc tattctaaca	360
ctaacaagaa tctgtctaata taattgtgac aacatctgca aaaccatagt tacctatttt	420
ttcttccaac tcttttactg aagacagagg atcatttttt acagaagggtg attttgctaa	480
ggaatccttt aatagtatca actctgctct cctatctcgt aattcctttt gntctagtag	540
tggtcttagg ttttcatggt cttttataaa acatttttct ttttcattat ggatttcaact	600
tttgctacat gtttgagata cttctttcaa cttgaattaa aagaatctga ttttcaagcc	660
ttgggttttc attagcatte ttcatttcta gaagatccag actgcanggn ctctttttct	720
ggactggaat tcttctaact cttttccttt aagaagaacc tttttcttgg ntcataggcc	780
tcttcaatta aggacttaag gtcttt	806

&lt;210&gt; 451

&lt;211&gt; 909

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 451

ctgagctctt ccagggaag aaatatgacg ggccagaagt ggatgtgtgg agtctggggg	60
tcattttata cacactagtc agtggctcac ttccttttga tgggcaaac ctaaaggaac	120
tgagagagag agtattaaga gggaaataca gaattccctt ctacatgtct acagactgtg	180
aaaaccttct caaacgttct ctggtgctaa atccaattaa acgcggcact ctagagcaaa	240
tcatgaagga caggtggatc aatgcagggc atgaagaaga tgaactcaaa ccatttgttg	300
aaccagagct agacatctca gaccaaaaaa gaatagatat tatggtggga atgggatatt	360
cacaagaaga aattcaagaa tctcttagta agatgaaata cgatgaaatc acagctacat	420
atthgttatt ggggagaaaa tcttcagagc tggatgctag tgattccagt tctagcagca	480
atctttcact tgctaagggt aggcccgagc agtgcctca acaacagtag tggccagtct	540
cctcaccaca aagtgcagag aagtgtttct tcaagccaaa agcaaagacg ctacagtgc	600
catgctggac cagctattcc ttctgtgtg gcgtatcccg aaaaggagtc agaccagcac	660
tgcagatagg tgaccctcaa agaagatggg aaatttctt ccnggaaatc aaagtggcag	720
tgctggttgg aaggaaangg gaattgcttc cagccaggtc ccatgctttg ggnaatgcc	780
ggtaatnctt aataaggcgg atattcctgg aacgccagga aaagctccac tggnccttag	840
tagtancnca gcctctggtg ggaatgacnc gaccgaaatt ncttaagggt tgcagtggag	900
agaacttcc	909

&lt;210&gt; 452

&lt;211&gt; 672

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 452

actgaaaaaa agtgaanttt naattatntt gttaatnnac tnaaaaaacc ncacncaagc	60
aatgttcaca antntaaatt naaacctttt gcactaaaaa ancacaaaan ancaaacaca	120
aaaccacagg cntgaactgn aaacctgtct taactatgaa ctggncctaa ggttaattct	180
tannngccat tcantatttc nntccttggg aactgtaatg ttntagcacc ggatgatctc	240
ccgnanaggt nctagaannng acngnctgcc agngnangga gatncttccn tatacaccac	300
ttnanacnca taccgtcnan tttcanaccn acccagacgg nangcacatg gngatggggc	360
cncacncnca ctntnanggn aacggaagta gggcagngng cgcatnggtt gcacatcttt	420
aatgtattgc attcgnaaaa aaaaggccag nttnatcc caggcgtgct ctngacctna	480
gaactttaatn ncatgattta naanatncag nacgntattg cctaaatntt attctataca	540
tttccatcag tggtnagga aaacacttta aatgcaactn anttccacat cananncact	600
gnggttacag nttagctca ttgggcaatt tttngaagca attttttnng aaangctntt	660
ggaatgnccc cc	672

&lt;210&gt; 453

<211> 834  
 <212> DNA  
 <213> Homo Sapiens

<400> 453

aagaagccaa	gaagtctgaa	gaaccaagaa	ttcgggaagaa	gccgggaccc	aagcccggat	60
ggaagaagaa	gcttcgttgt	gagagggagg	agcttcccac	catctacaag	tgtccttacc	120
agggctgcac	ggcgtgtac	cgaggcgctg	acggcatgaa	gaagcacatc	aaggagcacc	180
acgaggaggt	ccgggagcgg	ccctgcccc	accctggctg	caacaaggtt	ttcatgatcg	240
accgtacct	gcagcgccac	gtgaagctca	tccacacaga	ggtgcggaac	tatatctgtg	300
acgaatgtgg	acaaaccttc	aagcagcgga	agcaccttct	cgtccaccaa	atgcgacatt	360
cgggagccaa	gcctttgcag	tgtgaggtct	gtgggttcca	gtgcaggcag	cgggcatccc	420
tcaagtacca	catgacccaa	cacaaggctg	agactgagct	ggactttgcc	tgtgaccagt	480
gtggccggcg	gtttgagaag	gccacaacc	tcaatgtaca	catgtccatg	gtgcaccgcg	540
tgacacagac	ccaggacaag	gccctgcctt	ggaggcggaa	ccaccacctg	ggccaccgag	600
cccctctgtg	accacagacg	gccaggcggt	gaagcccga	cccacctgag	gacggcagtg	660
aggatgagca	cctctagcag	cctggacttc	gcagtggctg	tgtcaagcct	cacccttcgt	720
gtgcaccgcg	atgggagggt	cggagggttg	cctgccgncc	ttggtgctgg	angcgggctt	780
ggtgtccggc	tcaagtagcc	ttctttgntc	ttgggaccag	tgggttattt	tccc	834

<210> 454  
 <211> 703  
 <212> DNA  
 <213> Homo Sapiens

<400> 454

cccgtgtaaa	taatttatta	caagcataac	atggagctct	tgttgacta	aaaagtggat	60
tacaaatctc	ctcgactgct	ttagtgggga	aaggaatcaa	ttatttatga	actgtccggc	120
cccaagtcac	tcagcgtttg	cgggaaaata	aaccactggg	cccagagcag	aggaaggcta	180
cttgagcccg	acaccaagcc	cgctccagc	accaagggcg	ggcagcacc	tccgaccctc	240
ccatgcccgt	gcacacgaag	ggtgaggctg	acacagccac	tgccgagtc	aggctgctan	300
aggtgctcat	cctcactgcc	gtcctcaggt	gggttcgggc	ttcaccgcct	ggccgtctgt	360
ggtcacagag	gggctcggtg	gccaggtgg	tggttccgcc	tccaggggca	gggccttgct	420
ctgggtctgt	gtcagcgggt	gcaccatgga	catgtgtaca	ttgaggttgt	gggccttctc	480
aaaccgcccg	ccacactggg	cacaggcaaa	gtccagctca	gtctcagcct	tngtgggt	540
catgtggtac	ttgagggatg	cccgtgcct	gcactggaac	ccacagacct	cacactgcaa	600
aggcttggct	nccgaatgtc	gcatttgggg	gacgaaaaag	gtgcttccgc	tgcttgaaa	660
gnttggecca	attnggtaca	agatatagtt	ccccacctt	ggg		703

<210> 455  
 <211> 825  
 <212> DNA  
 <213> Homo Sapiens

<400> 455

atggcaatca	ggaaaagggtg	ccagaacccg	aggctttgga	ccttccagat	gacttgaacc	60
ttgacagtga	agacaagaat	ggtggtgagg	acaccgacaa	tgaagaagga	gaagaagaga	120
atcctttgga	gataaaaagaa	aaaccagaag	aagcaggtca	tgaagctgag	gaaagaggag	180
agaccgagac	cgaccagaac	gaaagtcaga	gtccacagga	gcctgaggaa	ggccccagtg	240
aagatgacaa	ggcagaagg	gaagaggaaa	tggacacagg	agctgatgac	caagatggag	300
atgctgctca	gcacctctga	gaacactctg	aggagcagca	gcagtctgtg	gaggaaaaag	360
acaaggaaag	cgatgaagaa	ggtggagaga	atggccctgc	tgaccaaggt	ttccagcccc	420
aggaggaaga	agaacgggag	gactctgata	cagaggagca	ggtgccagag	gctttggaga	480
ggaaggagca	tgctctctgt	gggcagactg	gtgtggagaa	catgcagaac	acacaggcca	540
tggagctggc	tggggccgca	cctgagaagg	agcaggggaa	agaggaacac	ggaagtggag	600

ctgcagatgc aaaccaggca gaaggccatg aatcgaattt cattgcccag ttggccttcc	660
agaacacacc agggaaaaa cacagagttt taaggaggaa cctgggcagg cttgacaatt	720
gaacgttnca tgggtgatca caattgaacg tgtgcacaag aagctganga cttgtggaat	780
ccggacaggc attgccaacc aggggccagc ttaacaagcc ccagg	825

<210> 456  
 <211> 740  
 <212> DNA  
 <213> Homo Sapiens

<400> 456	
acatcaacaa cagtgggtata tgttttaata gttttcagaa tataagctgc atagcttttt	60
agaataaaaa atgatataac ttcaggtaca tgctttggga cacttggtta aacaaggaat	120
ctgtgtcttt gatgaccacc tcaaaagggt cgcagacttc acagtgtaac ttggaaacag	180
acaaggagat agatgattac atcatgacat actgcctaca aaagaacatt ctgacagaac	240
attaagtaga acagagcaca cagtttcaag tattcagcac tgctttctgg ccaagtaaaa	300
actgcctaaa gatcagtttc tttcgactgg aaaaaataga tggagctgct gagttctgga	360
cacagcgttt ctttcccaga atgagactgg ctccagtcag cttgaaagca gtgtgaggaa	420
tcactcttcc ctttgactgt taagaaaaaa aaaaatgaac taaacaaata aattactaca	480
acaacagggg ccatggcact gaatgaaata aaggggcaat caccttccca tcattgcata	540
gtctcccga gacgcaagtg tgaaagagga tactgaaaag ccacttcatt tttacacagc	600
ccaagggatc gtttttatng atgacctggg cacctataat gnccagttgc tttatgagaa	660
ccacacacac accacattct tcctaccctn taagagaagg taggttcctt tcacaataag	720
gaaaaccccc ctttatactt	740

<210> 457  
 <211> 726  
 <212> DNA  
 <213> Homo Sapiens

<400> 457	
aaaatgtagt caactttatt ctctttaaac cacaaaatag agtctttggt tgtacaaaca	60
tcactagtta cagtctcgcc gaggtctcgg ctgggggtggg gcagttagtt agtcacaggc	120
cagaactcct gtgggggtctc tttaaaatgc taacaccagc gttaaaagac ttgggggcaag	180
ggtggtgctg gagctggcag ggccccacc ccaagtctgg gggaggtgcc tgctcctcta	240
ggagggcaca gggcccagc cagcgccgcc aggccttacg gggcggcgcc tgctgcacag	300
tgccacatct tcagggccca cagcgccggg tgagggcctg cccagaagca ccagagccac	360
ttctccatcc tcctcctgcg ggccagggtc gggagatggt tccagggacc tcaactctc	420
agcaaagtcc ggtgacaggc gtcccgggga ggtgctggtc tgggggcccga ggtcttcac	480
aggggtgggc gacgggggtg gccaggggga aggggcctcg gccagtcgct ccaggggccc	540
ccgcgtgccc cggcctttct gggacctgct gaggaccatc tgtgctcgga gagcgtcctg	600
ttccaatgac ttcatectgg ctggccttca caagcgacg cttctcggn ctcagggccc	660
cggacttcgg caaggggaca nggcacgctt cgggtgcccg tggcttcggg actttggacg	720
ccgcaa	726

<210> 458  
 <211> 870  
 <212> DNA  
 <213> Homo Sapiens

<400> 458	
cgcggcctct ccgcgggtg taccacctgt cgcggcgcga gacctctggt gaaagaaaag	60
atgttgtccc ggttaagagt agtttcacc acttgtactt tggcatgtcg acatttgac	120
ataaaagaaa aaggcaagcc acttatgtg aacccaagaa caaacaaggg aatggcattt	180
actttacaag aacgacaaat gcttggtctt caaggacttc tacctcccaa aatagagaca	240

```

caagatatc aagccttacg atttcataga aacttgaaga aaatgactag ccctttggaa 300
aaatatatct acataatggg aatacaagaa agaaatgaga aattgtttta tagaatactg 360
caagatgaca ttgagagttt aatgccaat gtatatacac cgacggttgg tcttgctgc 420
tcccagtatg gacacatctt tagaagacct aagggtattt ttatttcgat ctcagacaga 480
ggatcatgta gatcaattgt ggataactgg ccagaaaatc atgttaaggc tgttgtagtg 540
actgatggag agagaattct gggctcttga gatctgggtg tctatggaat gggaattcca 600
gtaggaaaac tttgttgnat cagcttgtgc aggaatacgg cctgatagat gcctgccagt 660
gtgtattgat gtgggaactg ataatatcgc actcttaaaa ganccatttt acatgggctt 720
gaccagaaac gagatcgcac ccacagtga tganctgatg gatgagttta tgaaagcttt 780
actgacagat atggccggaa cacctttatt cagttcgaag acnttggaaa tcataangcc 840
ttcaggtctt tgagaaagtc cggggaaaaa 870

```

&lt;210&gt; 459

&lt;211&gt; 761

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 459

```

aaatgtaaga tatttattaa ataaaaaggt tacactatga tttttataca ctgttgaaaa 60
caatgacttt tatttactta aagccagcag tagttcccat tactctcata atgttatagt 120
taaggcttga tttagtcca gaaaataaat agggtaaatt tttaatatct ccctagctct 180
gtctgctata gggaatttca gagtatgaag gtaagatgaa gcagatatat aagaacattt 240
ttagataatg acaatttttc cttaaaattt ggtgaaaatt tagtttcttc tcaaaattct 300
gtacttctat ccataaaaagt aaatttctat tttagtagct ctgtaagaac taggccagag 360
aagagtatta ccataaatag taaatagcaa atactttggc aagtctgaat tagagtacaa 420
gtgaagacat tcacaaacac actttttaca tctcctggat gtggtacggg ctgtatgtta 480
gaattaaagc atcacaacta tctgattgta ggggtgctgt gggcaatgca atcaatcaac 540
acgtctaccc caacagatgt ggagacccat ggaaaaaata catcaaccaa agtggctcagg 600
gagaacaaaa cccagaaaaa cacccttaaa actgaagaca ttatctcttc ttggctgaaa 660
aaaggggttc cctggagcac angaaaaggt ttatcaaggg aggcttctat tcngtaatca 720
caggaagggt tgatgcanat tcttgcccat tcatacccca t 761

```

&lt;210&gt; 460

&lt;211&gt; 876

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 460

```

ctgagtcctt gaagcgccct aaggagtaca ctgtgcgctt cacttttcca gacccccac 60
cactcagccc tccagtgtgt ggtctgcatg gtgtgacatt cggctaccag ggacagaaac 120
cactctttaa gaacttggtt tttggcatcg acatggattc aaggatttgc attgtgggccc 180
ctaattggtgt ggggaagagt acgctactcc tgctgctgac tggcaagctg acaccgaccc 240
atggggaaat gagaaagaac caccggctga aaattggctt cttcaaccag cagtatgcag 300
agcagctgct catggaggag acgcccactg agtacctgca ggggggcttc aacctgcctt 360
accaggatgc ccgcaagtgc ctgggcccgt tggcctgga ggtcacgcc cacaccatcc 420
agatctgcaa actctctggt ggtcagaagg cgcgagtgtt gtttctgag ctggcctgtc 480
gggaacctga tgtctctatc ttggacgagc caaccaataa cctggacata gagtctattg 540
atgctctagg ggaggccatc aatgaataca aggggtgctg gatcggtgtc agccatgatg 600
ccgactcat cacagaaacc aattgccagc ttgtgggttg tggaggaaca gagtggtagc 660
ccaatcgatg gtgactttga agactacaag ccgggaggtg ttggaagccc tgggtgaagt 720
catgggcagc cnggccccga naagtgaagc ttttcttcc agaagtntcc gagagaacat 780
aattgggggg gcctaaaann cctctggggg cttcccttct tttgaanaat gctntgggnt 840
gcaantgact tggcaaccat ttagggccct taaagg 876

```

&lt;210&gt; 461



<211> 689  
 <212> DNA  
 <213> Homo Sapiens

<400> 461  
 gcaaacaaga tccatttagt ggggaagagg ggactattaa aagctgctag aaaactgaat 60  
 aaagcaaatac aagactgaga acagttccaa ctcccatcaa tctccaaaca gtgacaggctc 120  
 ggcagcaact cctttccttt atttcttccc cttgtaaagg gaaattcaag ttcagcagca 180  
 ttcttttctt gccccaagtc ctcaaccaga caagaggctg caggcaccaa atcttgggct 240  
 ggataatggc aaaggcctca gaagctcacc tccagctctg agcttcaaca gctgtttgta 300  
 ccagtgaagtc agcattaaat ccaccagaaa agaacagcac cacccaaaga ctggggggca 360  
 gctgggacctg aagctgtagg gtaaatcaga ggcaggcttc tgagtgatga gagtccctgag 420  
 acaataggcc acataaactt ggctggatgg aacctcaca taaggtggtc acctcttgtt 480  
 tgtttagggg gatgccaagg ataaggccag ctcagttata tgaagagaag cagaacaaac 540  
 aaagtctttc agagaaatgg atgcaatcag aagtggtatc cccgncaca tcaaggtcac 600  
 actccacctt catgtgcctg aaatgggttc caggtcagct gcaggccan aggcagtctt 660  
 canaaggaag gggagaccac agaggactt 689

<210> 462  
 <211> 840  
 <212> DNA  
 <213> Homo Sapiens

<400> 462  
 aggagccttt ggagttccat gccaaagcggc cttggcgccc cgaggaggca gtagaagatc 60  
 cggacgagga ggatgaggat aatactagtg aagccgagaa tgggttctcc ctggaggaag 120  
 tgttacggct cggaggcacc aagcaagatt acctatgct ggctactttg gatgagaatg 180  
 aggaagtgat agatggaggc aaaaaaggag caatcgatga ccttcagcaa ggtgaattgg 240  
 aagcatttat tcaaaatctt aatttggcga agtcacaaa agcttcttca attgaagaag 300  
 atgaaccagc tgaaaaagaa aattccagca aaaaagaagt aaaaatacct aaaataaata 360  
 ataaaaatac agcagaaagt caaaggacat cagttaataa ggtgaaaaat aagaataggc 420  
 cagaaccaca ttctgatgag aatggcagta ccacaccgaa agtaaaagaa gataaacaga 480  
 acatctttga attttttgag agacagactt tgttacttag gcctggaggc aaatggatg 540  
 atctggagta cagcaatgaa tattctttga aacccagcc tcaggatgtt gnatctaagt 600  
 acaaaaccct tgctcagaag ctgtatcagc atgaaatcaa cttattcaaa agtaagacga 660  
 atagtcaaaa gggagcctct tctacctgga tgaaaggcaa ttgtgtcatc ggggaccact 720  
 aggtgacagg atggcagcca ttgattcttc ttattcagga tgatgccctg tcacaccact 780  
 ttcagnttgt agnaaactct tggggaaccc ttggtaaaaa ggaanggcna caaaacagca 840

<210> 463  
 <211> 784  
 <212> DNA  
 <213> Homo Sapiens

<400> 463  
 agatgtaagt agaattttta tctataattt acattaataa ctcatcttct ttgtttttta 60  
 gttttttgag tggtttttaat cctcttcttt ttaaaatggt tctttttctt gatgatactt 120  
 tttgcatctc tggtgtgtag ccagtcatca cgttcagcct cccatctaag ctgtttgaga 180  
 cttgcattat ctttgttagc catggcattc atgccaatgt tatcaaatct ggatcccata 240  
 tttcatcca atagatggcc aaactcttca gcagatacaa ataggctgga atcatttaag 300  
 tttcttttct ttttcttgg cccttgaaat gagccagcaa agtcaaaatc atctgtacct 360  
 tttctcttgc ttttcttagt actgactttg gagtggactt caagttcttg aacactctca 420  
 ctttcatcat ctaacacatc catgaatgtt cctccatctt catcaacttc agcaaattct 480  
 tcatcatcca tacttcttaa agaaacttca tcgtcatcca ggttaccaag ttcattatca 540  
 ctaccttctg aatcttcatc taatgtgtta tccttagctc cttttggtct ctttttcacg 600

tttccagcaa	aatccatat	catcctttnc	agagctgaaa	cagttatcat	cttcaaatgt	660
gtcaatcagc	tcttcaaatt	ctttcatcat	ccacgtcctt	ctaatacttt	cttcaatctg	720
catccccgtt	tttggnnttct	cttttaanca	gcaacttttt	ttatnaaacc	ctgggggaaa	780
aaac						784

&lt;210&gt; 464

&lt;211&gt; 850

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 464

caggcatcgg	ccaccggaac	agcctggaga	gcatctcttc	catcgaccgg	gagctgagcc	60
ctgagggccc	aggcaaggag	aaggagctgc	ctggacagac	cctgcactgg	gggcccagg	120
ccacagaagc	cgcaggctcg	ggtctgcagc	ccctgaagct	ggactaccgc	gccctggccg	180
ccgtgcccag	cgtgggcagc	gtgcagaggg	taccgtctgg	agcagctgga	gggaagatgg	240
ctgaatctcc	ctgtccccct	agtggccagc	agccgccctc	cccgccttct	ccggatgagc	300
tgcccgcmaa	tgtgaagcag	gcctacaggg	ccttcgcggc	cgtgcccact	tctcaccgc	360
ctgaggatgc	ccctgcccag	ccccccacgc	ctgggcctgc	agcctccccg	gagcagctgt	420
ccctccggga	gcggcagaag	tactttgagc	tggaggtgcg	cgtgcccag	gccgagggcc	480
cccctaagcg	cgtgtccctg	gtgggtgctg	acgacctgcg	gaagatgcag	gaggagggaag	540
ccagaaaact	acagcagaag	agagcgcaga	tgctgcggga	ggcggcagaa	gctggggccg	600
aagcgaggct	ngccctggac	ggggagacgc	tgggcgagga	ggaacaggan	gatgagcagc	660
cacctggggc	cagcccagac	cccacttaag	gcagaacccg	gcgtcccccc	ggccctggaa	720
gtggcgcccc	ggtgcggaag	gncaaaagct	gaacggggcc	ancaggaacc	ggttgccctt	780
canagtnccg	gacccaccgg	gacccancg	tgccctggtc	ccttgcccaa	cttcggggcc	840
ctggaaggcc						850

&lt;210&gt; 465

&lt;211&gt; 759

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 465

aaaatgtagt	caactttatt	ctccttaaac	cacaaaatag	agtctttggt	tgtacaaaca	60
tcactagtta	cagtctcgcc	gaggtctcgg	ctggggtggg	gcagttagtt	agtcacaggc	120
cagaactcct	gtgggggtctc	tttaaaatgc	taacacccag	gttaaaagac	ttggggcaag	180
ggtggtgctg	gagctggcag	ggccccacc	ccaagtctgg	gggaggtgcc	tgctcctcta	240
ggagggcaca	gggcccaggg	cacggcgccc	aggccttacg	gggcggcgcc	tgctgcacag	300
tgccacatct	tcaggggcca	cagcgccggg	tgagggcctg	cccagaagca	ccagagccac	360
ttntccatcc	tcctcctgcg	ggccagggct	gggagatggt	tccagggacc	tcaactcctc	420
agcaaagtcc	ggtgacaggc	gtcccgggga	ggtgctggtc	tgggggcccga	ggtcttccac	480
aggggtgggc	gacggggtgg	gcgcagggga	aggggcctcg	gccagtcgct	ccagggggccc	540
ccgcgtgccc	cggcctttct	gggacctgct	gaggaccatc	tgggctcngg	aaagcgtcct	600
tgttccaatg	acttcacatc	ggctgccctt	cacagnacac	gcttntcgcc	ttcagggccc	660
ggagcttttg	canggggaca	aggcaacgct	tcgggtgccc	ggtgggttcc	ggacttttga	720
acgcgccaan	ccggttcctt	gngggcgccc	cgtttcaac			759

&lt;210&gt; 466

&lt;211&gt; 1240

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 466

gtggtagtagt	tgccggagct	ggaggcggag	gcatgttttg	tagtggcggt	ggaggagggg	60
gcactggaag	tacaggtcca	gggtatagct	tccacacta	tggatttcct	acttatgggtg	120

ggattacttt	ccatcctgga	actactaaat	ctaagtctgg	gatgaagcat	ggaaccatgg	180
acactgaatc	taaaaaggac	cctgaagggt	gtgacaaaag	tgatgacaaa	aacactgtaa	240
acctctttgg	gaaagttatt	gaaaccacag	agcaagatca	ggagcccagc	gaggccaccg	300
ttgggaatgg	tgaggctact	ctaactgtat	caacaggaac	aaaagaagag	agtgtctggag	360
ttcaggataa	cctcttttcta	gagaaggcta	tgacgcttgc	aaagaggcat	gccaatgccc	420
ttttcgacta	cgcggtgaca	ggagacgtga	agatgtctgt	ggcgtccag	cgccatctca	480
ctgctgtgca	ggatgagaat	ggggacagtg	tcttacctt	agcaatcatc	caccttcatt	540
ctcaacttgt	gagggatcta	ctagaagtca	catctgggtt	gatttctgat	gacattatca	600
acatgagaaa	tgatctgtac	cagacgcct	tgacttggc	agtgtact	aagcaggaag	660
atgtgttggg	ggatttctgt	agggctggg	ccgacctgag	ccttctggac	cgcttgggta	720
actctgtttt	gcacctagct	gccaaagaag	gacatgataa	agttctcagt	atcttactca	780
agcacaataa	ggcagcacta	cttcttgacc	acccaacgg	ggacggtctg	aatgccattc	840
atctagccat	gatgagcaat	agcctgcat	gtttgtctgt	gctgttggcc	gctggggctg	900
acgtcaatgc	tcaggagcag	aagtccgggc	gcacagcact	gcacctgggt	gtggagcacg	960
acaacatctc	attggcaggc	tgctgtctcc	tggaggggtga	tgcccatgtg	gacagtacta	1020
cctacgatgg	aaccacaccc	ctgcatatag	cagctgggaa	agggctccacc	aggctggcag	1080
ctcttcttaa	atgcagcagga	gcagatcccc	tggtgggaga	ctttgagccc	ttctatgacc	1140
tggtgactc	ttgggaaaat	gcaggaaaag	gattgaagga	gttggngctg	aancacgcct	1200
tttaganatg	ggcncccaac	tggcaggnat	ttggcctatt			1240

&lt;210&gt; 467

&lt;211&gt; 885

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 467

gtgccggagc	tggaggcgga	ggcatgtttg	gtagtggcgg	tggaggaggg	ggcactggaa	60
gtacaggtcc	agggtatagc	ttcccacact	atggatttcc	tacttatggg	gggattactt	120
tccatcctgg	aactactaaa	tctaagtctg	ggatgaagca	tggaaacctg	gacactgaat	180
ctaaaaagga	ccctgaaggt	tgtgacaaaa	gtgatgacaa	aaactactgt	aacctctttg	240
ggaaagtatt	tgaaccacac	gagcaagatc	aggagcccag	cgaggccacc	gttgggaatg	300
gtgagggtcac	tctaactgtat	gcaacaggaa	caaaagaaga	gagtgtctga	gttcaggata	360
acctctttct	agagaagggt	atgcagcttg	caaagaggca	tgccaatgcc	cttttcgact	420
acgcggtgac	aggagacgtg	aagatgtctg	tggcgtcca	gcgccatctc	actgtgtgtc	480
aggatgagaa	tggggacagt	gtcttacct	tagcaatcat	ccaccttcat	tctcaacttg	540
tgagggatct	actagaagtc	acatctggtt	tgatttctga	tgacattatc	aacatgagaa	600
atgatctgta	ccagacgccc	ttgcacttgg	cagtgtatcac	taagcaggaa	gatgtggtgg	660
aggatttctg	gtgggtctgg	gcccgcctg	agccttctgg	acccgcttgg	gtaactctgg	720
tttgaccta	gcttgcccaa	agaaggacat	gataaagttc	tcaagtatct	tacttaagcn	780
caaaaanggc	agcactactt	tnntgaccac	ccccaacggg	ggacggtctt	gaatgccatt	840
catttaagcc	atgatgagcc	ataagcctgg	catggtttgc	tgctg		885

&lt;210&gt; 468

&lt;211&gt; 748

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 468

gcaaatcaga	gaaataacca	cattagaaaa	agcaatatgc	cttttttttt	aaaatggcac	60
atcaagtgc	tctcatttta	aaatatctct	tttcttaacc	cttaatttga	atgcaaaatg	120
atgtgtggt	cagaaggaat	gccagggtgc	gaccgtgata	cctttaatga	caataggaac	180
gtagcagagg	gacaacagca	atgacaacag	aaagcagctg	tgatccagca	gcagctggca	240
aagcttagta	agcaacctca	tccccagatg	catccgctca	gccagtgttg	tgattgctag	300
atactatctg	taagtgaacc	aaactaaaat	tcatattatga	accaagaaaag	gaagccaagt	360
tgaaaaggtc	tcgagttaaa	tcgagaatga	ttcaggcggg	ccggctctct	gagcaccttt	420

ggatgcactt cagcttctgt cttgtggaaa cgcgtggaat tttagggett tggtttacac	480
ggtgtgggaa attgtcagca ggctaaattt tgcttcttag aggtccttcc tgcccataat	540
catggggcat tttgttgaga gtttagcagt aggcaccact ggtagagac tcggtaaagc	600
tgagtttgcg gaaggatgtc tccacgccgc ttgtcgcaga cactgtcact ggcttcggag	660
ctcgnctatt tgctgccttg tggaggcagg cgaaanaagc agcgagtggg ccctgaaaag	720
gnnggcnttc actgggctgg aaggcttg	748

&lt;210&gt; 469

&lt;211&gt; 770

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 469

gcaaatcaga gaaataacca cattagaaaa agcaatatgc cttttttttt aaaatggcac	60
atcaagtgc tctcatttta aaatatctct tttcttaacc ctttaattga atgcaaatg	120
atgctgtggt cagaaggaat gccagggtggc gaccgtgata cttttaatga caataggaac	180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca	240
aagcttagta agcaacctca tcccagatg catccgctca gccagtgttg tgattgctag	300
atactatctg taagtgaacc aaactaaaat tcattttatga accaagaaag gaagccaagt	360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt	420
ggatgcactt cagcttctgt cttgtggaca acgcagtggg attttagggc tttggtttac	480
acggtgtggg aaattgtcag caggctaaat tttgccttct agaggctcct cctgcccata	540
atcatggggc attttggtga gagntagcag tgaggcacca ctggtcagag acttcggtaa	600
agctgagttt gcgggaaagg atgtnttcca cgcgccttnt cgcanacact ggcaactgnct	660
tgggagctcn gctattttgc ttgcccttgt ggangcaggc caaaaanaagc caacgaatgg	720
ggccctgaaa agnggggcct tcanctgggc ttggaagctt gcctnggac	770

&lt;210&gt; 470

&lt;211&gt; 892

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 470

agagtgcctg agttcaggat aacctcttct tagagaaggc tatgcagctt gcaaagaggc	60
atgccaatgc ccttttcgac tacgcggtga caggagacgt gaagatgctg ctggccgtcc	120
agcgccatct cactgctgtg caggatgaga atggggacag tgtcttacac ttagcaatca	180
tccaccttca ttctcaactt gtgagggatc tactagaagt cacatctggt ttgatttctg	240
atgacattat caacatgaga aatgatctgt accagacgcc cttgcacttg gcagtgatca	300
ctaagcagga agatgtggtg gaggatttgc tgagggtctg ggccgacctg agccttctg	360
accgcttggg taactctgtt ttgcacctag ctgccaaaga aggacatgat aaagtctca	420
gtatcttact caagcacaaa aaggcagcac tacttcttga ccaccccaac ggggacggtc	480
tgaatgccat tcatctagcc atgatgagca atagcctgcc atgtttgctg ctgctggtgg	540
ccgctggggc tgacgtcaat gctcaggagc agaagtcagg gcgcacagca ctgcacctgg	600
ctgtggagca cgacaacatc tcattggcag gctgcctgct cctggagggt gatgcccatg	660
tggacagtac tacctacgat ggaaccacac ccctgcata agcagctggg aaagggtcca	720
ccaggctggc agctcttctt aaagcagcag gagcagatcc cctggtggga gactttgagc	780
ccttctatga cctggatgac tcttgggaaa atgcaggaaa aggattgaag gagttggnct	840
ggaanacgc ctttttagana tgggcncca actggcaggc atttggccta tt	892

&lt;210&gt; 471

&lt;211&gt; 759

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 471

gcaaatcaga gaaataacca cattagaaaa agcaatatgc cttttttttt aaaatggcac	60
atcaagtgc tctcatttta aaatatctct tttcttaacc ctttaattga atgcaaaatg	120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cttttaatga caataggaac	180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca	240
aagcttagta agcaacctca tccccagatg catccgctca gccagtgttg tgattgctag	300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt	360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt	420
ggatgcactt cagcttctgt cttgtggaca acgcagtga attttagggc tttggtttac	480
acgggtgtgg aaattgtcag caggctaaat tttgccttct agaggtcctt cctgccata	540
atcatggggc attttgttga gagttagcag tgaggcacca ctggtcagag actcggtaaa	600
gctgagtttg cggaaggatg tctccacgcc gctgtccgca gacactgtca ctgnctcgga	660
gtcgtcttat ttgctgcctt gtggaggcag gcgananagg caacgagtgg gccctgaaaa	720
ngngtcttca ctgggctgga agcttgnctg gatcacttt	759

&lt;210&gt; 472

&lt;211&gt; 852

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 472

gtggtagtgg tgccggagct ggaggcggag gcatgttttg tagtggcggg ggaggagggg	60
gcactggaag tacagggtcca gggatatagct tcccacacta tggatttctt acttatgggtg	120
ggattacttt ccatcctgga actactaaat ctaatgctgg gatgaagcat ggaacctatgg	180
acactgaatc taaaaaggac cctgaagggt gtgacaaaag tgatgacaaa aacactgtaa	240
acctcttttg gaaagtatt gaaaccacag agcaagatca ggagcccagc gaggccaccg	300
ttgggaatgg tgaggctact ctaacgtatg caacaggaac aaaagaagag agtgctggag	360
ttcaggataa cctctttcta gagaaggcta tgcagcttgc aaagaggcat gccaatgccc	420
ttttcgacta cgggtgaca ggagacgtga agatgctgct ggccgtccag cgccatctca	480
ctgctgtgca ggatgagaat gggacagtg tcttacactt agcaatcatc caccttcatt	540
ctcaacttgt gagggatcta ctagaagtca catctggttt gatttctgat gacattatca	600
acatgagaaa tgatctgtac cagacgccct ttgcacttgg cagtgtatcac taagcaggaa	660
gatgtgtgtg aggatttctg gaagggtcgg ggcccagcct tgagcctttc tggaccctgt	720
tgggtaactc tgttttgac cctaacttgc caaagaaggg cattgataaa ggtcttcaag	780
tatcttactt cagcccaaaa anggcagcac tacttntttg accaccccaa cgggggacgg	840
gcttgaatgc ca	852

&lt;210&gt; 473

&lt;211&gt; 804

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 473

gcaaatcaga gaaataacca cattagaaaa agcaatatgc cttttttttt aaaatggcac	60
atcaagtgc tctcatttta aaatatctct tttcttaacc ctttaattga atgcaaaatg	120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cttttaatga caataggaac	180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca	240
aagcttagta agcaacctca tccccagatg catccgctca gccagtgttg tgattgctag	300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt	360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt	420
ggatgcactt cagcttctgt cttgtggaca acgcagtga attttagggc tttggtttac	480
acgggtgtgg aaattgtcag caggctaaat tttgccttct agaggtcctt ccttggccat	540
aatcatgggg cattttgttg agagttagca gtgaggcacc acttgggtcaa gagactcggg	600
naagctgagt tttgcggaag gatgtctcca cggcgtgtg cgcagacact gtcactgtct	660
tcggaactcg nctatttctg gncttgtgga agcaggcnaa nanaagcanc gaantggggc	720
cctgaaaagn gggctcttcac ttggnctgga aggcttgccc tgggatcnc ttnaatgggc	780

ttcggnggaa ccccatTTtg tctt

804

<210> 474  
 <211> 819  
 <212> DNA  
 <213> Homo Sapiens

<400> 474  
 ggctgggctg cgcttgggtc cgctcgtgct tcgggtgtccc tgtcgggctt ccagcagcg 60  
 gcctagcggg aaaagtaaaa gatgtctgaa tatattcggg taaccgaaga tgagaacgat 120  
 gagccattg aaataccatc ggaagacgat gggacgggtc tgcctccac gggtacagcc 180  
 cagtttccag gggcgtgtgg gcttcgctac aggaatccag tgtctcagt tatgagaggt 240  
 gtccggctgg tagaaggaat tctgcatgcc ccagatgctg gctggggaaa tctgggttat 300  
 gttgtcaact atccaaaaga taacaaaaga aaaatggatg agacagatgc ttcacagca 360  
 gtgaaagtga aaagagcagt ccagaaaaca tccgatttaa tagtggtggg tctcccatgg 420  
 aaaacaaccg aacaggacct gaaagagtat tttagtacct ttggagaagt tcttatgggtg 480  
 caggtcaaga aagatcttaa gactgggtcat tcaaaggggt ttggcttctg tcttttacg 540  
 gaatatgaaa cacaagtga agtaatgtca cagcgacata tgatagatgg acgatgggtg 600  
 gactgcaaac ttcttaattc taagcaaagc caagatgagc ctttgagaag cagaaaagtg 660  
 tttgtggggc gctgtcagag gacatgactg aggatgaagc tgcgggagtt cttcttttca 720  
 gtanccggga tgtgatggat ggtcttcacn cccaagccat tcagggcctt tggcttgggt 780  
 catttgcaga tgaatcagat gcgccagtct ctttgtgga 819

<210> 475  
 <211> 721  
 <212> DNA  
 <213> Homo Sapiens

<400> 475  
 atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa 60  
 gcacaggaca cagaactgca gcaaacagca ttcttatggg tagctaacag acattagaac 120  
 ttccaccctt ctttgagaca cctgagctca ctgggtgaact ctgcttcaag tctcctgca 180  
 aagcacacca caagctcagt ccatgttctc agcccatcag cttcagttca cattgccaca 240  
 cttacatatc agtaacagaa gagaacacac accatacagc attcacagca gttgacaaag 300  
 gggtaggggg agtacaagta tcatttctact taacacattc atctaattgtg ggttatctaa 360  
 gaacaaaaac tcaactaaaa gtcttccaac agatgtggat gtcctttgaa tgcaaaaaac 420  
 attcgtacat tatttgctat cattgtctc tgacactct ctcaccaaag ccacaggatt 480  
 gagagacaca tctcgccaag ttaaaaaata tccattatgc accaccaagt ctctgcacgc 540  
 gctctctcct tttctcgtc atactagcct ttcattgcctc ggcaccacca tcaatccac 600  
 acaaggtttc aaaagtccag acagccttct ggttccatat cacaggcctt gcgttcatag 660  
 cgggtgatac acttctcgga aattaagagt ancgataaa aatgggacac ccaccggtaa 720  
 a 721

<210> 476  
 <211> 442  
 <212> DNA  
 <213> Homo Sapiens

<400> 476  
 attnaaatca gtttnattna anantttcca ncannngcan ctntnataaa aggcntccan 60  
 nncaggacn canancngca gcaancagcn ttntnanggg tagntancan acnttaaanc 120  
 ttccacntt ntttganaen ccngancna nngggganct nngnttcang ncctccngca 180  
 angcacacca cangctcagn ccatgtntn agcccatcag nttcagttna catngccaca 240  
 nttncntatc agtaccagaa gagaccncnc nccntncagc nttncagca gtngncaaag 300  
 gggtaggggn agtccangta tcatttnant taccacattc atctaagggg gggtatctaa 360

nacaaaaanc tcanttaaan gtnttccanc anangnggan gnccttngaa ngcaaaaaanc 420  
nttcgnccat nattggctat ca 442

<210> 477  
<211> 878  
<212> DNA  
<213> Homo Sapiens

<400> 477  
gggtggctggg ctgcgcttgg gtccgctgct gcttcggtgt ccctgtcggg cttcccagca 60  
gcggcctagc gggaaaagta aaagatgtct gaatatattc gggtaaccca agatgagaac 120  
gatgagccca ttgaaatacc atcgaagac gatgggacgg tgctgctctc cacggttaca 180  
gcccagtttc caggggctgt tgggcttcgc tacaggaatc cagtgtctca gtgatgaga 240  
gggtgtccggc tggtagaagg aattctgcat gccccagatg ctggctgggg aaatctggtg 300  
tatgttgtca actatccaaa agataacaaa agaaaaatgg atgagacaga tgcttcatca 360  
gcagtgaag tgaaaagagc agtccagaaa acatccgatt taatagtgtt gggctctcca 420  
tggaatacaa ccgaacagga cctgaaagag tatttttagta cctttggaga agttcttatg 480  
gtgcagggtca agaaagatct taagactggt cattcaaaagg gggttggctt tgttcgtttt 540  
acggaatatg aaacacaagt gaaagtaatg tcacagcgac atatgataga tggacgatgg 600  
tgtgactgca aacttcttaa ttctaagcaa agccaagatg agcctttgag aagcagaaaa 660  
gtgtttgtgg ggcgtgtgca gaggacatga ctgaggatga agctgcggga gttcttcttt 720  
agtaccgggg atgtgatgga tgtctttatt ccccaagccc nttcaggggc ttttggcttt 780  
ggtacatttg ccagatgatc agaagccca gtctcttttg tggaaaagga ctttgatcat 840  
ttaaagggaa tcagcggttc attatatccc aatggccc 878

<210> 478  
<211> 768  
<212> DNA  
<213> Homo Sapiens

<400> 478  
gggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt ttttagaatg aatgcattta 60  
gattgaccaa atagattttt aaaaacaaat ctttgccaaa tagtttaagt acttttaaac 120  
ttcaaaatct tcttagggta aaataaatac ccgtatctat gcagtaccat aaacatgtta 180  
ataaaaggcc actcaacatt gaaagccttc tatgaccagt aactgaaatt tacacaagtg 240  
taaagaaggg attaaacat gccgttgaca agttaactta cccctgggct ccttgaaggc 300  
ttgtcagttt agtctttgga ggtccccgag taccatttta agtgttacca tgttactgct 360  
gctgagtaat agtgcaagtg catttttagt gcgggtcacc agacttattc aaaactagat 420  
ttcaaaagaa aaaaaaaaaat tttcactttg gccaatgcaa gaacaaatac caattaagtc 480  
tgggtatcag gtgtcaatgc atgacagggt atgaatccat ttgacttgag acaacttttc 540  
aaataagttt atttgaagca aaataaacta ctgccaagaa actttatgaa agttccatct 600  
caaaagggtc aaaaaagggt aattaactgc tatgaattct ttgcattcag ggcgtcaaaa 660  
gacgcccggc tnggatgcc gtgatgacca attcttgaat gagaaagcat gtagaccgna 720  
tttctatgag cagaaatatt tacnggccta ctttcaatgg aagngctt 768

<210> 479  
<211> 815  
<212> DNA  
<213> Homo Sapiens

<400> 479  
gcgaagcggg ggctgggctg cgcttgggtc cgctgctgct tcgggtgtccc tgcggggctt 60  
cccagcagcg gcctagcggg aaaagtaaaa gatgtctgaa tatattcggg taaccgaaga 120  
tgagaacgat gagcccattg aaataaccatc ggaagacgat gggacgggtc tgctctccac 180  
ggttacagcc cagtttccag gggcgtgtgg gcttcgctac aggaatccag tgtctcagtg 240

tatgagaggt	gtccggctgg	tagaaggaat	tctgcatgcc	ccagatgctg	gctggggaaa	300
tctggtgtat	gttgtcaact	atccaaaaga	taacaaaaga	aaaatggatg	agacagatgc	360
ttcatcagca	gtgaaagtga	aaagagcagt	ccagaaaaca	tccgatttaa	tagtggtggg	420
tctcccatgg	aaaacaaccg	aacaggacct	gaaagagtat	tttagtacct	ttggagaagt	480
tcttatgggt	caggtcaaga	aagatcttaa	gactgggtcat	tcaaaggggt	ttggctttgt	540
tcgttttacg	gaatatgaaa	cacaagtga	agtaatgtca	cagcgacata	tgatagatgg	600
acgatgggtg	gactgcaaac	ttcctaattc	taagcaaagc	ccagatgaac	ctttgagaag	660
cagaaaagtg	tttgtggggg	cgctgtacag	angacatgac	tgangataan	cttcnggagt	720
tcttttttta	ataccgggat	gtgatggatg	cttcatttcc	caaccatttc	agggcctttg	780
nctttggtac	catttgcaga	tgatcanatt	gcccc			815

&lt;210&gt; 480

&lt;211&gt; 812

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 480

gtggtgtcaa	aaaaaat	tttatctgg	ttcaaaaaat	tttttagaat	gaatgcattt	60
agattgacca	aatagatttt	taaaaacaaa	tctttgcaa	atagttaaag	tacttttaaa	120
cttcaaaatc	ttcttagggt	aaaataaata	cccgatcta	tgcagtacca	taaacatgtt	180
aataaaaggc	cactcaacat	tgaaagcctt	ctatgaccag	taactgaaat	ttacacaagt	240
gtaaagaagg	gattaaacca	tgccgttgac	aagttaactt	acccctgggc	tccttgaagg	300
cttgctcagtt	tagtcttttg	aggtccccga	gtaccatttt	aagtgttacc	atgttactgc	360
tgctgagtaa	tagtgcaagt	gcattttagg	tgcggtcacc	cagacttatt	caaaactaga	420
tttcaaaaga	aaaaaaaaa	ttttcacttt	ggccaatgca	agaacaaata	ccaattaagt	480
ctgggtatca	ggtgtcaatg	catgacaggt	gatgaatcca	tttgacttga	gacaactttt	540
caaataagtt	tatttgaagc	aaaataaact	actgccaaaga	aactttatga	aaagttccat	600
cttcaaaagg	ggtcaaaaaa	ggggaattaa	ctgctatgaa	ttctttgcat	tcanggctgc	660
aaaacaaaga	cccataatta	tttaaaatcc	agtttattta	agaatttncc	accntggaca	720
acttcttatt	aaaaaggcct	tccaggccca	nggaccacag	aaactgnang	ccaaacangc	780
atttcttatg	gggtagctta	ccaggacctt	tt			812

&lt;210&gt; 481

&lt;211&gt; 1127

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 481

gaggacagca	atttaaatggc	aaaggaaaga	caagacaggc	tgcgaaacac	gatgctgctg	60
ccaaagcgtt	gaggatcctg	cagaatgagc	ccctgccaga	gaggctggag	gtgaatggaa	120
gagaatccga	agaagaaaat	ctcaataaat	ctgaataaag	tcaagtgtt	gagattgcac	180
ttaaacggaa	cttgctgtg	aatttcgagg	tgcccgga	gagtggccca	ccccacatga	240
agaactttgt	gaccaaggtt	tcggttggg	agtttggg	ggaaggtgaa	gggaaaagca	300
agaagatttc	aaagaaaaat	gccgccatag	ctgttcttga	ggagctgaag	aagttaccgc	360
ccttgctgct	agttgaacga	gtaaagccta	gaatcaaaaa	gaaaacaaaa	cccatagtca	420
agccacagac	aagcccagaa	tatggccagg	ggatcaatcc	gattagccga	ctggcccaga	480
tccagcaggc	aaaaaaggag	aaggagccag	agtacacgct	cctcacagag	cgaggcctcc	540
cgcgcgcgag	ggagtttgtg	atgcaggtga	aggttggaaa	ccacactgca	gaaggaaacgg	600
gcaccaacaa	gaaggtggcc	aagcgcaatg	cagccgagaa	catgctggag	atccttggtt	660
tcaaagtcct	gcaggcgag	cccaccaaac	ccgactcaa	gtcagaggag	aagacaccca	720
taagaaacc	aggggatgga	agaaaagtaa	ccttttttga	acctggctct	ggggatgaaa	780
atgggactag	taataaagag	gatgagttca	ggatgcctta	tctaagtcac	cagcagctgc	840
ctgctggaat	tcttcccatg	gtgcccagg	tcgcccaggc	tgtaggagtt	agtcaaggac	900
atcacaccaa	agattttacc	agggcagctc	cgaatcctgc	caaggccacg	gtaactgcca	960
tgatagcccc	agagttgttg	tatgggggca	cctcgccac	agcccagagac	cattttaaag	1020



aataacatct cttcaggcca cgtaccccat ggacctctca cgagaccctn tgagcaactg 1080  
gactatcttt ncagagtcca gggattncag gttgaatacc aagactt 1127

<210> 482  
<211> 773  
<212> DNA  
<213> Homo Sapiens

<400> 482  
taccgcccct gcctgcagtt gaacgagtaa agcctagaat caaaaagaaa acaaaaccca 60  
tagtcaagcc acagacaagc ccagaatatg gccaggggat caatccgatt agccgactgg 120  
cccagatcca gcaggcaaaa aaggagaagg agccagagta cacgctcctc acagagcgag 180  
gcctcccgcg ccgcagggag tttgtgatgc aggtgaaggt tggaaaccac actgcagaag 240  
gaacggggcac caacaagaag gtggccaagc gcaatgcagc cgagaacatg ctggagatcc 300  
ttggttttcaa agtcccgcag gcgcagccca ccaaaccgc actcaagtca gaggagaaga 360  
caccataaaa gaaaccaggg gatggaagaa aagtaacctt tttgaaacct ggctctgggg 420  
atgaaaatgg gactagtaat aaagaggatg agttcaggat gccttatcta agtcacagc 480  
agctgcctgc tggaattctt cccatgggag ccgaggtcgc ccaggctgta ggagttagtc 540  
aaggacatca cacaaagat tttaccaggg cagctccgaa tcctgccaag gccacggtaa 600  
ctgccatgat agcccagagag ttgttgtatg ggggcacctc gccacagcc cgagaccatt 660  
ttaagaata acatctcttc aggccacgta ccccatggac ctctcacgag accctntgag 720  
caactggact atctttncag agtccaggga ttncagggtg aataccaaga ctt 773

<210> 483  
<211> 794  
<212> DNA  
<213> Homo Sapiens

<400> 483  
cattagtagc tgttnattga tcaanggttn gatataaagt tatttcanat cttcanactt 60  
ttgccagat ggaatcacia gcattacaaa gtttttctt aaaaataaaa aaaggatagg 120  
ggcaagtgg gaggggacca acctagcagt agnggcattt ganaataaat tancaaaaaa 180  
atttagtatt accattnatt gatgacaaac acttaagttt tacttacatt ccatggggag 240  
aaaaattcca gcgtaaaaaa tgaatggaag cagtacttaa ctgcagggc taccaggctt 300  
tccatacgga ccacacgcag agcctcagng cacacacttc tgtgtncagt ancacaacat 360  
caaaagcaac acagntgtat acagaaacgt aggtcattct tttcagccct aanggagatg 420  
taattaacag tatcgagcac tntggaaaaa cactctgcag gtttatatgg actacatgga 480  
gatcatatcc tgtagtgtag tgaaagctaa gtcctcaaga gccatatgta tagatncaca 540  
atgtttttta ataattctta aaacagagat caaagttcat ttaagnctg tttgcattac 600  
caaaaataaaa aatgaaataa aaatggaacc aaatgaacat ctaangttta aaattcctaa 660  
atnggccaat ttatncaact gngggggaga cttattcaag ggttttgaaa gtccagggaac 720  
tggtttcaag ctggaaccca ggggggcccc acaatttggc attcnctgga aactggccct 780  
ggggttaagc caaa 794

<210> 484  
<211> 788  
<212> DNA  
<213> Homo Sapiens

<400> 484  
caagaccaga aggaaatgca cagttggata agatgggggt cacaattatc agaaaatgca 60  
tcagtgccgt tgaaacacga ggtataaatg accaaggatt gtacagagtt gtgggggtga 120  
gttcaaaggc ccagagactt ctgagtatgt tgatggatgt aaaaacatgc aatgagggtg 180  
acctggagaa ttctgcagat tgggaagtga agacaataac aagtgccttg aaacagtatt 240  
tgaggagtct tccagagcct ctcatgacct atgagttaca tggagatttc attgttccag 300

ccaaaagcgg	cagcccagaa	tctcgtgtta	atcgatcca	tttcttggtta	cacaaactgc	360
cagagaagaa	taaagagatg	ttggatattt	tggtgaaaca	cttaacaaat	gtttcaaactc	420
actccaagca	gaacctgatg	actgtggcaa	acttaggagt	gggtgttgga	ccaactctga	480
tgaggccaca	ggaagaaact	gtcgtgcct	catggacttg	aagtttcaga	atattgttgt	540
ggaaatctta	attgaaaacc	atgaaaagat	ttttcggacg	ccgnccgata	ctacattccc	600
tgagcccacc	tgctgtcag	catcaccccc	aaatgcgcca	ccaangcagt	cnaagagaca	660
aggncagaga	accaagaagg	cccgtgggccc	gtctacaatc	tttggctgga	gctggaaaaga	720
tggtgacaat	ccttaccctt	tccanggagg	acaccctta	ccacagtctg	gactcacttt	780
tcttcccg						788

&lt;210&gt; 485

&lt;211&gt; 430

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 485

agtaaattac	agtttatttc	atttacagag	accttgaggc	aaaaaggtgg	tgtttgga	60
acagcacacg	ggtgaggagc	accggagaag	cctgttacaa	atacgccagt	gcacgctgcc	120
agtgcagtga	gtgtgggggtc	ctgcagggtg	ccgtctagga	agggcaggct	tgagacgcgc	180
gtctctgctt	ccctntgact	tgagaccatc	tcccttgnac	caacagcagc	ttntccaagc	240
taggctgcca	cagccaagca	cacactctgc	aaacctatca	ctgcgagtng	tacagttccc	300
tttanaatcg	nagcagcang	tgctcagggg	ggagagggag	ccnnngtggc	tctgggtggc	360
tgactgccag	tgtagggcga	cacangtggc	ataaggctgc	ccgtcccctc	tcattcttat	420
atgctngat						430

&lt;210&gt; 486

&lt;211&gt; 831

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 486

aaagtgtagt	gccatcgaca	caggctgtca	cgttttcccc	ttcttttcac	aatcaagcaa	60
ttatggtgac	aaaaccagtg	caggaatata	aaaaggaata	cacagtgcag	caggccttgt	120
tttgactctc	tggaatttgt	acttctatac	cggtgccctt	ggcaggaagt	gcccttctcc	180
catatcatat	ttcatctact	gcatgtcagg	ccaaggctca	tctgtcatct	gatgatagta	240
attcaaatgg	tgattctgcc	caagtgcata	ttgccacaaa	aaacagagaa	gaaaaagcag	300
cttgtctcag	aaatatttgt	ttaccttcag	aacacaatcc	aggtaatcag	aatgatttta	360
aaccaactaa	tgacgatatt	gaaatgcaga	gttcctcaaa	attaccaa	gatcctgcaa	420
ttattagcaa	cttttctgca	gcagtgggtc	atacgatagt	aaatgaaact	ttagagtcaa	480
tgacatcatt	ggaagtgtaca	aaaatgggtg	atgaacgtac	agattattta	actaaatctt	540
taaaggagaa	aaccctcca	ttttccact	gtgatcaggc	agtgtgcaa	tgagtgaag	600
ctagtagcaa	taaggacatg	tttctgacc	ggttatctaa	atctattatt	aaacattcca	660
tagataagag	caaatcagtg	atcccaaata	tagataaaaa	tgagatatac	aaggaaagct	720
tgctgtttc	tggaagaaga	tcacagtgtg	caccagaaaa	agtcttncca	aatttnctga	780
ctcttcagaa	tcagtttaac	ttactgggtc	acttttagct	gcaaaggaat	g	831

&lt;210&gt; 487

&lt;211&gt; 728

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 487

gacggagtct	gtctctgtcg	cccaggatgg	agtacagtgg	cacaatctca	gctcactgca	60
atctctgcct	cccagggttc	agcaattctc	ctgccttagc	ctcccaagta	gctgggatta	120
cagggtgcctg	ccaccacgcc	tggttaattt	ttgtattttt	ggtagagacg	gggtttcacc	180

WO 99/04265

<211> 844  
 <212> DNA  
 <213> Homo Sapiens

<400> 490

aagtgtttga gattgcactt aaacggaact tgcctgtgaa tttcgagggtg gcccgggaga	60
gtggcccacc ccacatgaag aactttgtga ccaagggttgc ggttggggag tttgtggggg	120
aagggtgaagg gaaaagcaag aagatttcaa agaaaaatgc cgccatagct gttcttgagg	180
agctgaagaa gttaccgccc ctgcctgcag ttgaacgagt aaagcctaga atcaaaaaga	240
aaacaaaacc catagtcaag ccacagacaa gcccagaata tggccagggtg atcaatccga	300
ttagccgact ggcccagatc cagcaggcaa aaaaggagaa ggagccagag tacacgctcc	360
tcacagagcg aggcctcccg cgccgcagggt agtttgtgat gcaggtgaag gttggaaacc	420
acactgcaga aggaacgggc accaacaaga aggtggccaa gcgcaatgca gccgagaaca	480
tgctggagat ccttgggttc aaagtcccgc aggcgcagcc caccaaacc gcactcaagt	540
cagaggagaa gacaccata aagaaaccag gggatggaag aaaagtaacc ttttttgaac	600
ctgctcttg ggatgaaaat gggactagta ataaagagga tgagttcagg atgccttacc	660
taagtcatca gcagctgcct gctggaattc tttccatggt gcccgangtc gcccaagctg	720
taggaagtta gtcaaggaca tnacacccaa gattttacca ggcagcttcg aatcttgcca	780
nggcncngta ctgccatgat agcccanagt tgttgtattg gggcancctt gccccaggcc	840
ggga	844

<210> 491  
 <211> 825  
 <212> DNA  
 <213> Homo Sapiens

<400> 491

cattagtagc tgtttattga tcaatgggtt gatataaagt tatttcanat cttcagactt	60
ttgccagat ggaatcacia gcattacaaa gttttttctt aaaaataaaa aaaggatagg	120
ggcaagttgg gaggggacca acctagcagt agtggcattt gagaataaat taacaaaaaa	180
atttagtatt acctttatt gatgacaaac acttaagttt tacttacatt ccatggggag	240
aaaaattcca gcgtaaacia tgaatggaag cagtacttaa ctgcgagggt taccaggctt	300
tccatacgga ccacacgcag agcctcagtg cacacacttc tgtgtacagt aacacaacat	360
caaaagcaac acagctgtat acagaaacgt aggtcattct tttcagccct aatggagatg	420
taattaacag tatcgagcac tctggaaaat cactctgcag gtttatatgg actacatgga	480
gatcatatcc tgtagtgtag tgaaagctaa gtccctcaaga gccatatgta tagatacaca	540
atgtttttta ataattctta aaacagagat caaagttcat ttaaagtcct gtttgcatta	600
acaaaaataa aaatganaat aaaaatggac caaatgatca tctaaagttt aaaattccta	660
aatggtccaa tttatacaac tgggggagac ttattcaagg tttttgaaag tccaggactg	720
gtttcagctg aaccagangg cccccaattt gcatcactgg aactgncctg ggtttagcca	780
aggaaattaa aaagnctta acccccttcc cctgggattt gaacc	825

<210> 492  
 <211> 946  
 <212> DNA  
 <213> Homo Sapiens

<400> 492

gaggacagca atttaaatgac aaaggaaaga caagacaggc tgcgaaacac gatgctgctg	60
ccaaagcgtt gaggatcctg cagaatgagc cctgccaga gaggctggag gtgaatggaa	120
gagaatccga agaagaaaat ctcaataaat ctgaaataag tcaagtgttt gagattgcac	180
ttaaaccgaa cttgcctgtg aatttcgagg tggcccggga gagggtgcca cccacatga	240
agaactttgt gaccaagggt tcggttgggg agtttgtggg ggaaggtgaa gggaaaagca	300
agaagatttc aaagaaaaat gccgccatag ctgttcttga ggagctgaag aagttaccgc	360
cctgcctgac agttgaacga gtaaagccta gaatacaaaa gaaacaaaa cccatagtca	420

WO 99/04265

agccacagac aagcccagaa tatggccagg ggatcaatcc gattagccga ctggcccaga	480
tccagcaggc aaaaaaggag aaggagccag agtacacgct cctcacagag cgaggcctnc	540
cgcgccgcag ggagtttgtg atgcagggtga aggttgga aa ccacacttg cagaaggaacg	600
ggcaccaca agaaggtggc caagcgcaat gcacccgaga acatgctgga gatccttggt	660
ttcaaaagtc ccgcangcgc agcccacaa acccgactn aagtcagang agaagacccc	720
attaaggaaa ccangggatg gaagaaaagt ancnttttga anctggctnt tgggattaaa	780
atgggcttgt antaaagagg atgagttcag gatgncntat ctaagtcatn aacacttgct	840
gctggaaaatc tttccatggg ggccgaggtc ncccagcttt taggagttat canggcctnt	900
cncccaaga attttcccg gcagtttcca atctgccaag gccccg	946

&lt;210&gt; 493

&lt;211&gt; 804

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 493	
ggctcttatg tgcttaaata acgctgaatt ataattagcc acacaaataa tgagagtttt	60
atTTTTTTTT tctggtcac tccaaatcag cctgttaagg tatatttcct tctacagcct	120
ttcctgattt tgcattgtct cattcccaa gtagtctacc ttagtttaca ctcaaaggta	180
gcacttggtt aaactacatg acagaaacag gctgcaaagg tggacaaggg gaagcatgtc	240
cctcttgctt tgataaatca gtgccacaca cagaaccac attttctgag acattatctt	300
cattatagag cgttttgatt ccatcataga agtcatccac ttccatttcc tctactttgc	360
gttttagtaga ggtctgcttg caccactgg cagctgggag atgatggtaa aaggctgctg	420
tacctctgac tggcacttct ggcttgctgt tgccttgga gaagtctggg cctgggacag	480
aggagggatg taatctgaac actcctttgt cacaggctac cagggtgtgc ttgaggggac	540
ggtagacata aacggaattc agaggcaggg aagactgcag agtanaaagg tgatgtgcc	600
aagcttccga ccatggatca actgggagct atncactctg ctttctgaag cagntcaatt	660
gtaagagaaa gcccaatccn ggaatggagt tcntccattt tcagactaac cctgggcncn	720
aagcaaggca tgggatcccc tgggaattgcc anaaanttgg gttgcagggg ccatacnagg	780
nggnaagtaa ttngctttgg gtaa	804

&lt;210&gt; 494

&lt;211&gt; 856

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 494	
gaaaggttg aaagaataaa tagggccagg gaacaaggat ggagaaatgt gctaagtgt	60
ggtggaagtg gtgaagtaaa ggctcctttt ctgggcagtg gagggactat agctccatca	120
tctttttctt ctcgaggaca gtatgaacat taccatgcc aatttgacca aatgcagcaa	180
caaagagcag aagataatga agctaaatgg aaaagagaaa tatatggctg aggtcttcca	240
gaaaggcaaa aagggcagct agctgtagaa agagctaaac aagtagaaga gttcctgcag	300
cgaaaacggg aagctatgca gaataaagct cgagccgaag gacatatggg aatcctgcaa	360
aacctggcag ctatgtatgg aggcaggccc agctcttcaa gaggagggaa gccaaagaa	420
aaagaggaag aggtttatct ggcaagactg aggcaataa gactacagaa tttcaatgag	480
cgccaacaga ttaaagccaa acttcgtggt gaaaagaaa aagctaata tttgaagga	540
caagaaggaa gtgaagaggc tgacatgagg cgcaaaaaaa atcgatcac tgaaggccca	600
tgcaaatgca cgtgctgctg tctaaaagaa cactagaacg aaagagaaag gaggttatg	660
agagagaaaa aaaagtgtgg gaagagcatt tgggtgctaa aggagttaag agtctgatg	720
ttcttccctt ttgggaccag catgaaacaa ggtggctttt ccttcaaagc caccggatga	780
aaanctggta nttctgnac ttcacttttn aagaanttgg ccgtggngt agtttaactg	840
gataccggg aacttc	856

&lt;210&gt; 495

&lt;211&gt; 757

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 495

agataataaa aattttaatag caatatcata aaataaacac acatattaaa aaatcaagta	60
tttagtttcg gatattagaa ataatatata taataaattc aacatactga tagtgctgca	120
agataagatt ttattttttca aattacatat tatgccaacc agcctgcttt ggactcagag	180
gttcaaaaac ttgtctttta ttacgaagaa catntggact gtagacacct ntaacgaaac	240
cagggttatac ttggcatatt gngattgaag ctgtgtgata aacatcttaa tgacctaaact	300
aaatcctntc ataacagaaa gaagttcaac aggcaaacat ttccctccct aggatcctag	360
ttaccaaaac tgtcacagng ncaaaataaa aataattatt tctcctcttt taacatctta	420
ttgnccttga agcttatgta tggaggaagt taaaaaccaa aagagcaact ttaagctata	480
tgctaagtca gngttaaatac cacagactaa tttttogata tagnattcct ggntctggnc	540
cttaaagaga aataaaggca ttaaaccact tttttatatg tcaaggaaat ataatttngc	600
tattctttca taatcaaatc tttcaatgga tttctaagac tggnttctac agcctgngng	660
ctagttccag gggacacact gattgtaaaa nggacttggn ggaaatntaa aactttaagg	720
gctaaaaaat ttcattcttc aaaatgntnt agatgtt	757

&lt;210&gt; 496

&lt;211&gt; 1759

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 496

cgaggatcca ggcgcaggag gacagagcaa tgggtgagag aactcttcac gctgcagtgc	60
ccacaccagg ttatccagaa tctgaatcca tcatgatggc cccatttgt ctagtggaaa	120
accaggaaga gcagctgaca gtgaattcaa aggcattaga gattcttgac aagatttctc	180
agccctgtgt ggtggtggcc attgtagggc tataccgcac aggaaaatcc tatctcatga	240
atcgtcttgc aggaaagcgc aatggcttcc ctctgggctc cacggtgcag tctgaaacta	300
agggcatctg gatgtggtgt gtgccccacc tctctaagcc aaaccacacc ctggctcctc	360
tggacaccga gggcctgggc gatgtagaaa agagtaacct taagaatgac tcgtggatct	420
ttgccctggc tgtgcttcta agcagcagct ttgtctataa cagcgtgagc accatcaacc	480
accaggccct ggagcagctg cactatgtga ctgagctagc agagctaate agggcaaaat	540
cctgccccag acctgatgaa gctgaggact ccagcgagtt tgcgagtctc tttccagact	600
ttatttggac tgttcgggat tttaccctgg agctaaagtt agatggaaac cccatcacag	660
aagatgagta cctggagaat gccttgaagc tgattccagg caagaatccc aaaattcaaa	720
attcaaacat gcctagagag tgtatcaggc atttcttccg aaaacggaag tgctttgtct	780
ttgaccggcc tacaatatgac aagcaatatt taaatcatat ggacgaagtg ccagaagaaa	840
atctggaaag gcatttcctt atgcaatcag acaactctg ttcttatatc ttcacccatg	900
caaagaccaa gacctgaga gagggaatca ttgtcactgg aaagcggctg gggactctgg	960
tggtgactta tgtagatgcc atcaacagtg gagcagtacc ttgtctggag aatgcagtga	1020
cagcactggc ccagcttgag aaccagcgg ctgtgcagag ggcagccgac cactatagcc	1080
agcagatggc ccagcaactg aggtccccca cagacacgct ccaggagctg ctggacgtgc	1140
atgcagcctg tgagagggaa gccattgcag tcttcatgga gcactccttc aaggatgaaa	1200
accatgaatt ccagaagaag cttgtggaca ccatagagaa aaagaaggga gactttgtgc	1260
tgcagaatga agaggcatct gccaaatatt gccaggctga gcttaagcgg ctttcagagc	1320
acctgacaga aagcattttg agaggaaatt tctctgttcc tggaggacac aatctctact	1380
tagaagaaaa gaaacagggt gagtgggact ataagctagt gcccagaaaa ggagttaagg	1440
caaacgaggt cctccagaac ttcctgcagt cacagggtgt tgtagaggaa tccatcctgc	1500
agtcagacaa agccctcact gctggagaga aggccatagc agcggagcgg gccatgaagg	1560
aagcagctga gaaggaacag gagctgctaa gagaaaaaca gaaggagcag cagcaaatga	1620
tggaggctca agagagaagc tttcaggaat acatggncca aatggagaag aagttggagg	1680
angaaaggga aaacctntc agagagcctt gaaaagggtg ctaaaacaca agcttgaagg	1740
tncagaagaa aatgcttaa	1759

<210> 497  
 <211> 842  
 <212> DNA  
 <213> Homo Sapiens

<400> 497  
 atgacaagca atattttaa catatggacg aagtgccaga agaaaatctg gaaaggcatt 60  
 tccttatgca atcagacaac ttctgttctt atatcttcac ccatgcaaag accaagaccc 120  
 tgagagaggg aatcattgtc actggaaagc ggctggggac tctggtggtg acttatgtag 180  
 atgccatcaa cagtggagca gtacctgtc tggagaatgc agtgacagca ctggcccagc 240  
 ttgagaaccc agcggctgtg cagagggcag ccgaccacta tagccagcag atggcccagc 300  
 aactgaggct cccacagac acgctccagg agctgctgga cgtgcatgca gcctgtgaga 360  
 ggaagccat tgcagtcttc atggagcact ccttcaagga tgaaaacat gaattccaga 420  
 agaagcttgt ggacaccata gagaaaaaga agggagactt tgtgctgcag aatgaagagg 480  
 catctgccaa atattgccag gctgagctta agcggcttct agagcacctg acagaaagca 540  
 ttttgagagg aattttctct gttcctggag gacacaatct ctacttagaa gaaaagaaac 600  
 aggttgagtg ggactataag ctagtcccc gaaaaggagt taaggcaaac gaggtcctcc 660  
 agaacttctt gcagtcacan gtggtttag aggaatccat cctgcagtca gacaaagccc 720  
 tctactgttg agagaaggcc atacaaccgg aaccgggcca tgaaggaagc acttgagaag 780  
 gaacaggagc tgcttagaga aaaaccgaag gagccagcag ccaaatggat ggaggctcaa 840  
 ga 842

<210> 498  
 <211> 707  
 <212> DNA  
 <213> Homo Sapiens

<400> 498  
 gagcaataaa gctttttaat cacctgggtg caggctggct gagtccgaaa agacagtcag 60  
 tgaagggaga tagggttggg accattttac aggatattggg ttggttaaagg aaaattacag 120  
 tcaaaggggg ttgttctctg gcgggcagag gtgggtgtca caagtgtctt agtgggggag 180  
 cttttgagcc aggatgagcc aggagaagga atttcacaag gtaatgtcat cagttaaggc 240  
 aggaacaggc cattttcact tcttttgtga ttcttcactt gcttcaggcc atctggacgt 300  
 atgtacatgc aggtcacagg ggatatgatg gcttagcttg ggctcagagg cctgacattt 360  
 agtatattta ctggaatatt caggctctta aatacgtgag ccaagatatt ttgtccctac 420  
 tccaagtagc ttggaagccc caggtagagt gacaatcatt atgttgctag ccatgtcaag 480  
 gatctttaag agccttaact gttcattttt agtgctttca atttttctt tcagttgatt 540  
 aatctcttta ttaactgct cagatttctt ttgaaattct tccttaagca tttcttcttg 600  
 naccttcagc ttgggggtta acagccttct atgctctctg aaaagggttt ncctttcctn 660  
 cttcaacttc ttctccattt gggccatgna ttcttggaag cttctct 707

<210> 499  
 <211> 772  
 <212> DNA  
 <213> Homo Sapiens

<400> 499  
 gtggagcagt acctgtctg gagaatgcag tgacagcact ggcccagctt gagaacccag 60  
 cggctgtgca gagggcagcc gaccactata gccagcagat ggcccagcaa ctgaggctcc 120  
 ccacagacac gctccaggag ctgctggacg tgcagcagc ctgtgagagg gaagccattg 180  
 cagtcttcat ggagcactcc ttcaaggatg aaaaccatga attccagaag aagcttgttg 240  
 acaccataga gaaaaagaag ggagactttg tgctgcagaa tgaagaggca tctgccaat 300  
 attgccaggc tgagcttaag cggctttcag agcacctgac agaaagcatt ttgagaggaa 360  
 tttctctgt tcttgaggga cacaatctct acttagaaga aaagaaacag gttgagtgagg 420  
 actataagct agtgcccaga aaaggagtta aggcaaacga ggtcctccag aacttctctg 480

agtcacaggt ggtttagag gaatecatcc tgcagtcaga caaagccctc actgctggag	540
agaaggccat agcagcggag cgggccatga aggaagcagc tgagaaggaa caggagctgc	600
taagagaaaa acagaaggag cagcagcaaa tgatggaggg tcaagagaga agctttcagg	660
aatacatggn ccaaatggag aagaagttgg aggangaaa ggaaaaccnt ntcagagagc	720
cttgaaaagg ttgctaaaac acaagcttga aggtncagaa gaaaatgctt aa	772

&lt;210&gt; 500

&lt;211&gt; 787

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 500

ggctgttttt agtttttttct tgatttcaaa tcttcttttc aacacctccc tcttctctat	60
gagattgaac agttcttgct ctctctcttt ctctgtcatc tgttccagac gggccctgtc	120
ttctctatct cccatgaggt cttctccata gccatcatgg aactcttcat cttctgagga	180
agagtctgaa tctgaactgg aagaggagct gttgctgtca gagtctgaca cttcaccttc	240
ctcaggggct gagctctcag ctgaactgtc tttgtctgaa ctgcctgagg aggcagtttt	300
gttggtctgt ttcttcatgg ttcttttctt ctctattttt ctggcttttc ctttcttctt	360
atttttctcg tgccgaattc ggcacgagga actattcgag tttttttttt tttttttttt	420
tgagacggag tctcgtctcg tcgcccaggc tggagtgcag cggcgcgatc tcgactcact	480
gcaagctccg cctcccgggc ccacgccatt ctcccgcctc agcctcccgt gtactgtggg	540
ctacagggcg gtgccaccac gcccgcccaa tttttgcatt tttagcanag acgggggttc	600
accgggttag ccaggaaggc ctcgatcccc tgacctcgng atccacctgt cttggcctcc	660
caaagtgtcg ggacccacag gcaatgagtt ggatttttaa ctactgggtt taaggccagg	720
caggccccag gcctggggtt tgggcctggc nctggcctgn ccggccttgg gtttaccttc	780
ctggggg	787

&lt;210&gt; 501

&lt;211&gt; 886

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 501

agttntnacc gctcgnctcg cgcgcctgca ggtcgacact agtggatcca aagcgggatt	60
ttaccctgga gctaaagtta gatggaaacc ccatcacaga agatgagtag ctggagaatg	120
ccttgaagct gattccaggc aagaatccca aaattcaaaa ttcaaactatg cctagagagt	180
gtatcaggca tttcttccga aaacggaagt gctttgtctt tgaccggcct acaaatagaca	240
agcaatattt aaatcatatg gacgaagtgc cagaagaaaa tctggaaagg catttcctta	300
tgcaatcaga caacttctgt tcttatatct tcacccatgc aaagaccaag accctgagag	360
agggaaatcat tgtcactgga aagcggctgg ggactctggt ggtgacttat gtagatgcca	420
tcaacagtgg agcagtacct tgtctggaga atgcagtgc agcactggcc cagcttgaga	480
accagcggc tgtgcagagg gcagccgacc actatagcca gcagatggcc cagcaactga	540
ggctccccac agacacgctc caggagctgc tggacgtgca tgcagcctgt gagaggggag	600
ccattgcagt cttcatggag cactccttca aggatgaaaa ccatgaattc cagaagaagc	660
ttgtggacac catagagaaa aagaaggag actttgtgct gcagaatgaa gaggcactctg	720
ccaaatattg ccaggctgac ttaagcggct ttcagagcac ctgacagaaa gcattttgag	780
aggaattttc tctggtcctg gaggacacaa tctctactta gaagaaagga aacaggntga	840
gtgggggacta ttagctagtg nccagaaaa gagttaaggc aaacga	886

&lt;210&gt; 502

&lt;211&gt; 626

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 502

WO 99/04265

```

gggagcaata aagcttttta atcacctggg ngcaggctgg ctgagtcena aaagacagtc      60
agngaaggga nanagggttg ggaccatttt acaggatttg ggttggtaaa ggaaaattac      120
ngtcaaaggg ggttggtctn tggcgggcaa aggggggngt cacaagttgc ttannggggg      180
ancttttgag ccaggatgan ccnggaaaag gaatttcnca aggnaatggc atcagttaag      240
gcaggaacag gccattttca cttnttttgg gantcttcac ttgcttcagg ccatntggaa      300
nattcaggct nttaaanacn ngagecnana natthttggc ctactccaag tagcttggaa      360
nccccaggtg aagggaacna cattatgntg ctagecntgt caaggatntt taaaagcctt      420
aactggncat ttttanggtt ttcaattttt tnttttagtn gattaancnc tttatttaac      480
ngctcaaatt tcttttgaaa ntnttcctta agcntttctt cttgnccttn ancttgggnt      540
ttancagcct ttcatgcnc ttgaaaaggn tttcccttcc ctctccaac ttcntctcca      600
tttggggcca tgnatttncc tgggaa      626

```

<210> 503  
 <211> 884  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 503
cgaggatcca ggcgcaggag gacagagcaa tgggtgagag aactcttcac gctgcagtgc      60
ccacaccagg ttatccagaa tctgaatcca tcatgatggc ccccatthgt ctagtggaaa      120
accaggaaga gcagctgaca gtgaattcaa aggcattaga gattcttgac aagattttct      180
agcccgtggg ggtgggtggc attgtagggc tataccgcac aggaaaatcc tatctcatga      240
atcgtcttgc aggaaagcgc aatggcttcc ctctgggctc cagggtgcag tctgaaacta      300
agggcatctg gatgtggtgt gtgccccacc tctctaagcc aaaccacacc ctggtccttc      360
tggacaccga gggcctgggc gatgtagaaa agagtaacc taagaatgac tctgtgatct      420
ttgccctggc tgtgcttcta agcagcagct ttgtctataa cagcgtgagc accatcaacc      480
accaggccct ggagcagctg cactatgtga ctgagctagc agagctaate agggcaaaat      540
cctgccccag acctgatgaa gctgaggact ccagcgagtt tgcgagtttc tttccagact      600
ttatttgac tgttcggga tttaccctgg agctaaagtt agatggaaac cccatcacag      660
aagatgagta cctggagaat gccttgaagc ttgantncag gcaagaatnc caaaantcaa      720
aattcaaaca tgcctagaga gtgnattaag gcantttctt cggaaaaccg gaagtgtctt      780
tgcctttgac cgggctacaa atggacaagc caatatttaa aatcatntng gacnaantgc      840
cngaagaaaa tctggaaaag catttcctta tgccatcaga caac      884

```

<210> 504  
 <211> 612  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 504
gagacggagt ttcgtctgt cgcccaggct ggagtgcagt ggcgcgatct cgactcactg      60
caagctccgc ctctggggt cagccattc tctgcctca gcctcccgtg tagctgggac      120
tacaggcgcg tgccaccatg cccggctaatt ttttgatttt ttagtagaga cggggtttca      180
ccgtgttagc caggatggtc tcatctctct gacctctga tccaccgctc tggcctccc      240
aaagtgtctg gattacaggc aatgagttga tttttaacta ctgggttttag gccaggcagg      300
cccaggcctg gttttggggc tggcgctggg ctgcctgtct ttgggttttac ttccttggtg      360
ntttttctta aaacaggtag tgagtatcaa acaatataaa acaatataag aaggtctctc      420
tcttccctca attctagctg caagttttga gcactagaca gcagaaataa attcctaaaa      480
tggtgagttg agcaaatagt tcaatgctat ccctatcaaa ctaccaatga cattntttac      540
nagaaattag aaactacttt aaaaatttca tatgggaacn aaaaaagagc cttaccnag      600
gcnaanccta aa      612

```

<210> 505  
 <211> 2215  
 <212> DNA



&lt;213&gt; Homo Sapiens

&lt;400&gt; 505

ctcagatgct cactgcagtc caagagatct cccatctcat tgagccgctg gccaatgctg	60
cccgggctga agcctcccag ctgggacaca aggtgtccca gatggcgag tactttgagc	120
cgctcaccct ggctgcagtg ggtgctgcct ccaagaccct gagccaccg cagcagatgg	180
cactcctgga ccagactaaa acattggcag agtctgcct gcagttgcta tacactgcca	240
aggaggctgg tggtaaccca aagcaagcag ctcacacca ggaagccctg gaggaggctg	300
tgagatgat gaccgaggcc gtagaggacc tgacaacaac cctcaacgag gcagccagt	360
ctgctggggc cgtgggtggc atgggtggact ccatcacca ggccatcaac cagctagatg	420
aaggaccaat gggtaacca gaaggttcct tctgtgatta ccaaacaact atggtgcgga	480
cagccaaggc cattgcagtg actgttcagg agatgggttac caagtcaaac accagcccag	540
aggagctggg ccctcttgct aaccagctga ccagtgacta tggccgtctg gcctcgagg	600
ccaagcctgc agcgggtggt gctgaaaatg aagagatagg tccccatc aaacaccggg	660
tacaggagct gggccatggc tgtgccgctc tggtcaccaa ggcaggcgcc ctgcagtga	720
gccccagtga tgcctacacc aagaaggagc tcatagagtg tgcccggaga gtctctgaga	780
aggtctccca cgtcctggct gcgtccagg ctgggaatcg tggcaccag gcctgcatca	840
cagcagccag cgtgtgtct ggtatcattg ctgacctga caccaccatc atgttcgcca	900
ctgctggcac gctcaatcgt gagggtagct aaactttcgc tgaccaccg gagggcatcc	960
tgaagactgc gaaggtgctg gtggaggaca ccaaggtcct ggtgcaaac gcagctggga	1020
gccaggagaa gttggcgag gctgccagct cctccgtggc gaccatcacc cgcctcgctg	1080
atgtggtcaa gctgggtgca gccagcctgg gagctgagga ccctgagacc cagggtgtac	1140
taatcaacgc agtgaaagat gtagccaaag ccctgggaga cctcatcagt gcaacgaagg	1200
ctgcagctgg caaagttgga gatgaccctg ctgtgtggca gctaaagaac tctgccagg	1260
tgatggtgac caatgtgaca tcattgctta agacagtaaa agccgtggaa gatgaggcca	1320
ccaaaggcac tcgggcctg gaggaacca cagaacacat acggcaggag ctggcggttt	1380
tctgttcccc agagccacct gccaaagcct ctacccaga agacttcac cgaatgacca	1440
aggttatcac catggcaacc gccaaaggcc ttgctgctgg caattcctgt cggcaggag	1500
atgtcattgc cacagccaat ctgagccgcc gtgctattgc agatatgctt cgggcttgca	1560
aggaagcagc ttaccaccca gaagtggccc ctgagtgtgc gcttcgagcc ctgcactatg	1620
gccgggagtg tgccaatggc tacctggaac tgctggacca tgtactgtg accctgcaga	1680
agccaagccc agaactgaag cagcagttga caggacattc aaagcgtgtg gctggttccg	1740
tcactgagct catccaggct gctgaagcca tgaagggaac agaattgggtg gaccagagg	1800
acccacagct cattgtgag aatgagctcc tgggagctgc agccgccatt gaggtgcag	1860
ccaaaaagct agagcagctg aagccccggg ccaaacccaa ggaggcagat gagtcttga	1920
actttgagga gcagatacta gaagctgcca agtccattgc agcagccacc agtgactgg	1980
taaaggctgc gtcggctgcc agagagaact agtggcccaa gggaaagtgg gtgccattcc	2040
aagcaatgca ctggacgatg ggcagtggtc ccangggcct catttctgct gccngatgg	2100
tggcttgctg ccaccaacaa nttgtgtgaa ggcagccaat gcaactgtcc aagggcagtc	2160
caagcngga anaactnatn ttattcagcc caacaggtaa cttgccttcc acaag	2215

&lt;210&gt; 506

&lt;211&gt; 742

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 506

ggcagcaggt aacccaaagc aagcagctca caccaggaa gccctggagg aggtgtgca	60
gatgatgacc gaggccgtag aggacctgac aacaaccctc aacgaggcag ccagtgtgc	120
tggggtcgtg ggtggcatgg tggactccat caccaggcc atcaaccagc tagatgaagg	180
accaatgggt gaaccagaag gttccttcgt ggattacca acaactatgg tgccgacagc	240
caaggccatt gcagtgaccg ttcaggagat ggttaccaag tcaaacacca gccagagga	300
gctgggcccct cttgctaacc agctgaccag tgactatggc cgtctggcct cggaggccaa	360
gcctgcagcg gtggctgctg aaaatgaaga gataggttcc catatcaaac accgggtaca	420
ggagctgggc catggctgtg ccgctctggt caccaaggca ggcgccctgc agtgagccc	480

WO 99/04265

cagtgatgcc tacaccaaga aggagctcat agagtgtgcc cggagagtct ctgagaaggt	540
ctcccacgtc ctggctgcgc tccaggctgg gaatcgtggc acccaggcct gcatcacagc	600
agccagcgt gtgtctggta tcattgtga cctcgacacc accatcatgt tcgccacttg	660
ctggcacgt caatcgtgag ggtactgaaa ctttcgctga ccaccgggan ggcattctga	720
agactgcgaa ngtgctggtg ga	742

&lt;210&gt; 507

&lt;211&gt; 735

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 507

gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc	60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg	120
ctgtggggac tggtctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc	180
agatcgaggt acagcagcgt taataataact cttggagcgt taataactctg gggaggggca	240
ggcacttggg gggccctagg gcatgaaggc acttgggggtt ggggagggga caggggatgt	300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgtctggg	360
ggtgggcagg ttgggccccg acagcccaga aggcctttggt agtggcacgc acagtctctg	420
ggccgggtct gcattaaata gaagaggctt ctttagtgct catctcgaag ctctgaaggc	480
agaaacttgt actgtctctg ccggatctgg gccagtttct tccngcctc ttccagctct	540
cgttccttcc gaagcatttc ttctgngct gcgatgatct gggcaatgcc cgccaacccat	600
cttctcttta ccaccactgg ctttattctc ctgctcttca aaggctgcaa ccttctgggc	660
tgntttnacc agattatctg angctcgctt cactgngttg ncagcaacct tgaatccgtt	720
tcatttgccc tccag	735

&lt;210&gt; 508

&lt;211&gt; 666

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 508

gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc	60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg	120
ctgtggggac tggtctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc	180
agatcgaggt acagcagcgt taataataact cttggagcgt taataactctg gggaggggca	240
ggcacttggg gggccctagg gcatgaaggc acttgggggtt ggggagggga caggggatgt	300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgtctggg	360
ggtgggcagg ttgggccccg acagcccaga aggcctttggt agtggcacgc acagtctntg	420
ggccgggtct gcattaaata gaagaggctt ctttagtgct catctngaag ctctgaaggc	480
agaaacttgt actgtctctg ccggatctgg gccagtttct tccgcgcct tttccagctc	540
tcgttctctt ccgaagcatt tcttctctgng ctgccatgat tctgggcat gcccgccaac	600
catcttctct tttaccanc attggctttna ttctctctgct ctttcaaaag gcttgnagnc	660
tttctg	

&lt;210&gt; 509

&lt;211&gt; 818

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 509

ctcagatgct cactgcagtc caagagatct cccatctcat tgagccgctg gccaatgctg	60
cccggtctga agcctcccag ctgggacaca aggtgtccca gatggcgag tactttgagc	120
cgctcaccct ggctgcagtg ggtgctgcct ccaagacct gagccaccg cagcagatgg	180
cactcctgga ccagactaaa acattggcag agtctgcct gcagttgcta tacactgcca	240

WO 99/04265

```

aggaggtctg tggtaaccca aagcaagcag ctcacaccca ggaagccctg gaggaggctg 300
tgcagatgat gaccgaggcc gtagaggacc tgacaacaac cctcaacgag gcagccagtg 360
ctgctggggg cgtgggtggc atggtggact ccatcaccca ggccatcaac cagctagatg 420
aaggaccaat ggggtgaacca gaaggttctt tcgtggatta ccaaacaact atggtgcgga 480
cagccaaggc cattgcagtg actgttcagg agatggttac caagtcaaac accagcccag 540
aggagctggg cctctcttgc aaccagctga ccagtgacta tggccgtctg gcctcggagg 600
ccaagcctgc agcgggtggc gctgaaaatg aagagatagg ttccatatca aacaccgggt 660
acaggagctg ggccatggct tgtgcccgtc tggtcaccaa ngcangcgcc ctgantgcaa 720
gccagtgat gcctacccaa gaaggagctc atagagtgtg cccggagaag tttttgaaag 780
gtcttccacg tntctggttg cttcaagctt gggaaatcg 818

```

&lt;210&gt; 510

&lt;211&gt; 651

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 510

```

gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc 60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg 120
ctgtggggac tggttggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc 180
agatcgaggt acagcagcgt taataatact cttggagcgt taataactctg gggaggggca 240
ggcacttggg gggccctagg gcatgaaggc acttgggggt ggggagggga caggggatgt 300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgtctgg 360
gttgggcagg ttgggccccg acagcccana agcctttggg agtggcacgc acagtctctg 420
ggcgggtct gcattaaata gaagaggctt ctttagtgct catctcgaag ctctgaaggc 480
aanaaacttg tactgtctgt gcncggatct gggccanttt cttccgcgcc tcttccanct 540
ctcgttcttt ccgaagcatt tcttctgtgc tgccgatgat ctggncaatg ccgccaacca 600
tcttctcttt caccaccact tggctcaatt cttcctggct ctttcaaagg c 651

```

&lt;210&gt; 511

&lt;211&gt; 712

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 511

```

gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc 60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg 120
ctgtggggac tggttggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc 180
agatcgaggt acagcagccg ttaataatac tcttggagcg ttaataactct ggggaggggc 240
aggcacttgg ggggcccctag ggcaggaagg cacttggggg tggggagggg acaggggatg 300
tactgcggga ctgggcgggg ccaggccctg ggtttggca ggcactttgg gagtgtctgg 360
ggttgggcag gttgggcccc gacagcccag aagcctttgg tagtggcacg cacagtctct 420
gggcccgggtc tgcattaaat agaagaggct tctttagtgc tcatctcgaa gctctgaagg 480
cagaaacttg tactgtctgt gccggatctg ggccagtttc ttccgcgcct cttccagctc 540
tcgttctctt cgaagcattt cttcctgtgc tgccgatgat ctgggcaatg cccggcaacc 600
atcttctctt ttaccaccac tgggtcatt ctcctgtctt tcaaaangct gcagcccttt 660
tgggctgntt ttcaccagaa ttaatcttga ngcntcgctt tnaacttgcgt tg 712

```

&lt;210&gt; 512

&lt;211&gt; 850

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 512

```

aggagctggc ggttttctgt tccccagagc cacctgcca gacctctacc ccagaagact 60

```

WO 99/04265

```

tcatccgaat gaccaagggt atcaccatgg caaccgcaa ggccgttgct gctggcaatt 120
cctgtcgcca ggaagatgtc attgccacag ccaatctgag ccgccgtgct attgcagata 180
tgcttcgggc ttgcaaggaa gcagcttacc acccagaagt ggccctgat gtgcggcttc 240
gagccctgca ctatggccgg gagtgtgcca atggctacct ggaactgctg gaccatgtac 300
tgctgacct gcagaagcca agcccagaac tgaagcagca gttgacagga cattcaaagc 360
gtgtggctgg ttccgtcact gagctcatcc aggctgctga agccatgaag ggaacagaat 420
gggtagaccc agaggacccc acagtcattg ctgagaatga gtcctggga gctgcagccg 480
ccattgaggc tgcagccaaa aagctagagc agctgaagcc ccgggcaaaa cccaaggagg 540
cagatgagtc cttgaacttt gaggagcaga tactagaagc tgccaagtcc attgcagcag 600
ccaccagtgc actggtaaag gctgctcgg ctgccagaga gaactagtgg cccaagggaa 660
agtgggtgcc attccaagca atgcactgga cgtgggagc tgggtccang ggctcattt 720
ctgctgccc gatggtggct tgcggccacc aacaantgt gtgaaggcag ccaatgcaac 780
tgtccaagg catgccaagc cnggaanaac tnatnttatt cagcccaaca ggtaacttgc 840
ctttcacaag

```

<210> 513  
 <211> 727  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 513
gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc 60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg 120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc 180
agatcgaggt acagcagcgt taataatact cttggagcgt taataactctg gggaggggca 240
ggcacttggg gggccctagg gcatgaaggc acttgggggt ggggagggga caggggatgt 300
actgcgggac tgggcggggc caggccctgg ggttggcag gcactttggg gagtgtctgg 360
gttgggcag ttgggccccg acagccana agcctttggt agtggcacgc acagtctctg 420
ggcccggtt tgcattaaat agaagaggct tctttagtgc tcactctgaa gctctgaagg 480
cagaaacttg tactgtgct gccggatctg ggccangttt cttccngcc tcttcagct 540
tctcgttct tccgaaagca tttctnctg tgcttgcnat gaatcntggg caatgcccgn 600
ccaaccatc ttctcttca ccaccactgg tctnatttct cctnngtct tcaaaaggct 660
tgcaagcct ctgggctggc ctttcacca ganttaattt naagnctcgc tttacttggg 720
tttgcca

```

<210> 514  
 <211> 877  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 514
cagcagccag cgtgtgtct ggtatcattg ctgacctga caccaccatc atgttcgcca 60
ctgctggcac gctcaatcgt gagggtactg aaactttcgc tgaccaccgg gagggcatcc 120
tgaagactgc gaaggtgctg gtggaggaca ccaaggtcct ggtgcaaac gcagctggga 180
gccaggagaa gttggcgag gctgcccagt cctccgtggc gaccatcacc cgcctcgtg 240
atgtggtcaa gctgggtgca gccagcctgg gagctgagga ccctgagacc caggtggtac 300
taatcaacgc agtgaaagat gtagccaaag ccctgggaga cctcatcagt gcaacgaagg 360
ctgcagctgg caaagttgga gatgacctg ctgtgtggca gctaaagaac tctgccaagg 420
tgatggtgac caatgtgaca tcattgctta agacagtaaa agcogtgga gatgaggcca 480
ccaaaggcac tcgggcccgt gaggcaacca cagaacacat acggcaggag ctggcggttt 540
tctgttcccc agagccacct gccaaacct ctacccaga agacttcac cgaatgacca 600
agggatcac catggcaacc gccaaagcgt tgctgctgca attcctgtcg ccaggaagat 660
gtcattgcca cagccaatct gagcccggc tgctattgca gatattgttc ggctttgcaa 720
ggaagcagct taccaccag aagtggggc tgatgtgagg nttcaancct gnactatggc 780
ccggagtgtg ccaatggcta cctgggaact ggttgacca ttgtacttgg tgacccttgc 840

```

WO 99/04265

877

aaaagcccag cccagaaact tgaagccagc agtttgc

<210> 515  
 <211> 685  
 <212> DNA  
 <213> Homo Sapiens

<400> 515  
 gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc 60  
 tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg 120  
 ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc 180  
 agatcgaggt acagcagcgt taataataact cttggagcgt taataactctg gggaggggca 240  
 ggcacttggg gggccctagg gcatgaaggc acttgggggtt ggggagggga caggggatgt 300  
 actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgtctgg 360  
 gttgggcagg ttgggccccg acagcccaaa aggcctttggg agtggcacgc acagtctctg 420  
 ggccgggtct gcattaaata gaagaggctt ctttagtctg catctcgaaa ctcttgaagg 480  
 cagaaacttt gtaactgtgc ttgccggatc tgggccagtt tcttccgcgc ctcttcagct 540  
 tntcgttctt ttcogaancc atttctttcc tgnngcttgc natgaatctt gggcaaatgc 600  
 ccgccaaccc atcttctctt ttcacccccc cacttggnct cattctctctg ctcttcaaaa 660  
 ngcttgcaac ctttcttgg ngctn 685

<210> 516  
 <211> 790  
 <212> DNA  
 <213> Homo Sapiens

<400> 516  
 ggtaacata cgaagaaaga atggctcgtc gactgctagg tgctgacagt gcaactgtct 60  
 ttaatatcca ggagccagaa gaggaacacag ctaatcagga atacaaagtc tccagctgtg 120  
 aacagagact catcagtga atagagtaca ggctagaaag gtctcctgtg gatgaatcag 180  
 gtgatgaagt tcagtatgga gatgtgctg tggaaaatgg aatggcacca ttctttgaga 240  
 tgaagctgaa acattacaag atctttgagg gaatgccagt aactttcaca tgtagagtgg 300  
 ctggaaatcc aaagccaaag atctattggt ttaaagatgg gaagcagatc tctccaaaga 360  
 gtgatcacta caccattcaa agagatctcg atgggacctg ctccctccat accacagcct 420  
 ccaccctaga tgatgatggg aattatacaa ttatggctgc aaaccctcag ggccgcatca 480  
 gttgtactgg acggctaattg gtacaggctg tcaaccaaag aggtcgaaag ccccggtctc 540  
 cctcaggcca tctcatgtc agaaggcctc gttctagatc aagggacagt ggagacgaaa 600  
 atgaaccaat tcaggagcga ttcttcagac ctacttctt gcaggctcct ggagatctga 660  
 ctgttcaaga aggaaaactc tgcagaatgg actgcaaagt cagtgggtta ccaaccccca 720  
 gatctaagct ggcaactaga tggaaagccc gtacgccctg acagtgtctc caagaaagcc 780  
 tgggtgcctga 790

<210> 517  
 <211> 747  
 <212> DNA  
 <213> Homo Sapiens

<400> 517  
 atagtcaaag gtatgtttct gccttttaca tantgtgaca aaggaatatg ttggtcaagg 60  
 caatggctgt ttcagtgttt cagctttaac aagaatgctg gattacaggt cctcactttc 120  
 taccagggca gtattcagtg tcaggtgaga tgggttggcc tcaggttgga acgctgcttt 180  
 gatgtctagt ccctgggtccg aaagtgtctg atagcgactg gctgagggcc gtactttttt 240  
 tggcttgggtg ctctgtgact gctgatgccg ctgggtgtaa acgtccagcc tggcagtaca 300  
 ggacacaatc cctgcttcat tcttggctga cacagtatac caccagcat cttcttttgt 360  
 ggctccctga atgagcaggc agatgtagcc gtggttgtcc tgggtcatgc tcaactcggtc 420

WO 99/04265

```

agtgtgtga gtgagtgtt cattttcttt cttccaaaat atctgaggtg gtggcactcc 480
caatacacga cattccagcc gcactgggta cccatcagca actcctgtgt tttggagctt 540
ctcaataaac acaggggggtt tgtgtgtctt tttagcagca accacaagct ccaggctgaa 600
tgagttctgt cctgtctgggt tggtagctat acatgtgtag atgccggcat cacgtgacgt 660
gactggctct atgatcagag agtgcacccc gttctttacg caccagcatc ttgggagccc 720
tgtcaaggcg taccggcttt ccatcta 747

```

<210> 518  
 <211> 926  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 518
agaaagcaga gccttctgaa gttgacatga atttctcctaa atccaaaaag gcaaaaaaga 60
aagaggagcc atctcaaaat gacatttctc ctaaaaccaa aagtttgaga aagaaaaagg 120
agcccattga aaagaaagtgt gtttcttcta aaacccaaaa agtgacaaaa aatgaggagc 180
cttctgagga agaaatagat gtccttaagc ccaagaagat gaagaaagaa aaggaaatga 240
atggagaaac tagagagaaa agccccaaac tgaagaatgg atttctcat cctgaaccgg 300
actgtaaccc cagtgaagct gccagtgaag aaagtaacag tgagatagag caggaaatac 360
ctgtggaaca aaaagaaggc gctttctcta attttcccat atctgaagaa actattaac 420
ttctcaaagg ccgaggagtg accttcttat ttctataca agcaaagaca ttccatcatg 480
tttacagcgg gaaggactta attgcacagg cacggacagg aactgggaag acatttctct 540
ttgccatccc tttgattgag aaacttcatg gggaactgca agacaggaag agaggccgtg 600
ccctcaggt actggttctt gcacctacaa gagagttggc aaatcaagta agcaaagact 660
tcagtacat cacaaaaaaa gcttgtcagt gggttgggt tttatggtg aacttcttat 720
ggaggtcaat ttggaccgca tggangnaat ggggaattgga taatcctggg ttggaacacc 780
angtcgtatc aaaggaccnc antacnggaa tgggcaaaact aagatcttca cccaaacttt 840
aagccatgtt ggcccttggg atgaaagtgg gnncccagan tgtttgggaa atnggggaatt 900
tgcttgatca aagtggggaa gaagaa 926

```

<210> 519  
 <211> 789  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 519
acatactctt gagcaatgct aatctgcgcc cttactccc ttaagtcctt cttggtaaat 60
aatgttaatc ttccaatagg aagaagtggg gtacattacc atttaagcac catttatcca 120
gcctacttac aaataaagct atggagccac cttatacatg tgaaattcct taaaaccctg 180
gctttctatt aaaatgtact tttatatata ctatctatga agaattcact aaagcatgaa 240
tcaccttata atgagaagct aaaaatgtat caaaacgaac ataagtatag gtaatccaca 300
tcaaacatac tacatcttcc aagtctagag catacactgg tataaactgt attacaaccc 360
agattagttt gaaatcttgt ttcaaaacat tgctcagtat taagtctcag tagacaaata 420
ataggaccac atgagaaact gttcggcagg tggctgagga aaccttaact tccaaaggct 480
caaagtgggtc ctccagagac tgttacactc ccttaggtat ttatttcagg gaaggacact 540
attaagggac acttttgagt ataaagacag gtgaactcac aaagtatagg cagatcatgc 600
ttgattttat cttctaactc acaggataat acattagaat aaaaatgtaa tgaattcata 660
cacctttcaa aanggaaaaa ctggatgaag taacnnntaa agntataaat ggataatgga 720
tccggatgaa aataaatttt aaaatggaaa ccttggctgn gtctgaaaga agaccgggac 780
tttggcaag 789

```

<210> 520  
 <211> 827  
 <212> DNA  
 <213> Homo Sapiens

WO 99/04265

<400> 520  
 gtgatatagt gcttgtcatt ttaattgtaa catattacca aaaagcttta tatacatagc 60  
 ttatactat ttacattgca gtagaggaat ggcaatgcta acaggtgac agtgcttcca 120  
 aactttttca atacctacac atgggagatc taaagagtac aatatattta agacttctaa 180  
 ggaattgttt tctcctcact aataaagcat gccctgacta aagagaagtc ctgtaggcac 240  
 agccttatct attcaatgac tggcacctcc caggggtact gacacacaaa gtgccttcac 300  
 tggaccttac agttctcact gcccttggac tccagtccag ctttggggct ggggacaagt 360  
 cggcctcgct tgaccctcag gccctctctg gggctgtcag tcggacttct ctcaggaaga 420  
 ttattgactg ggacggattt cgtggtgggt tctcggagga tgggtgctga atctactggg 480  
 ctccgctgag caactttgac cttttgtgat ctgctgccac cagctgttgg tttggaggac 540  
 tctgcaagat tttctttgcc gagactcagt ggggatagcg ctaacttctg tgcagccagg 600  
 cgggggctgg tccgagttgc catggttgggt cttcgcagga tatatgggct aagtctttnc 660  
 tgcgggatg tcagcaaac ctttctttac aacttctgga agtccctctg gctcaaaact 720  
 agtaccttcg ngntctctgc anggtgaata ccactcatga ctgntttctt gcttttttta 780  
 gaaaagctct ctggggtaac aggtgtgggn ccttcacat tcttccc 827

&lt;210&gt; 521

&lt;211&gt; 710

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 521  
 gtgatatagt gcttgtcatt ttaattgtaa catattacca aaaagcttta tatacatagc 60  
 ttatactat ttacattgca gtagaggaat ggcaatgcta acaggtgac agtgcttcca 120  
 aactttttca atacctacac atgggagatc taaagagtac aatatattta agacttctaa 180  
 ggaattgttt tctcctcact aataaagcat gccctgacta aagagaagtc ctgtaggcac 240  
 agccttatct attcaatgac tggcacctcc caggggtact gacacacaaa gtgccttcac 300  
 tggaccttac agttctcact gcccttggac tccagtccag ctttggggct ggggacaagt 360  
 cggcctcgct tgaccctcag gccctctctg gggctgtcag tcggacttct ctcaggaaga 420  
 ttattgactg ggacggattt cgtggtgggt tctcggagga tgggtgctga atctactggg 480  
 ctccgctgag caactttgac cttttgtgat ctgctgccac cagctgttgg tttggaggac 540  
 tctgcaagat tttctttgcc gagactcagt ggggatagcg ctaacttctg tgcagccagg 600  
 cgggggctgg tccgaagttg ccattgggtg ntcttcagg atatatgggc taagncttct 660  
 ctgtcgggat gtcagcaaaa ccctttcttt acaacttctg gaaagccctt 710

&lt;210&gt; 522

&lt;211&gt; 638

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 522  
 atagncttg tcattttaat tgtaacatat taccaaaaag ctttatatac atagctttat 60  
 actatttaca ttgcagtaga ggaatggcaa tgctaacagg tgatcagtgc ttccaaactt 120  
 tttcaatacc tacacatggg agatctaaag agtacaatat atttaagact tctaaggaaat 180  
 tgttttctcc tactaataaa agcatgccct gactaaagag aagtcctgta ggcacagcct 240  
 tatctattca atgactggca cctcccaggg gtactgacac acaaagngcc ttcactggac 300  
 cttacagttc tactgccct tggactccag tccagctttg gggctgggga caagtcggcc 360  
 tegcttgacc ctnaggccct ctctggggct gtcagtcgga cttctntcag gaagattatt 420  
 gactgggacg gatttcgttg tgggttctcg gaggatgggt cctgaatcta ctgggctccg 480  
 ctgagcaact ttgacctttt gngatctgct gccaccagct gttggtttgg aggactntgc 540  
 aagattttct ttgcgagac ttantggggg atagcgctaa cttctggngc agccangcgg 600  
 gggctgggtcc naanttggca tggntgntct tcncagga 638

&lt;210&gt; 523

&lt;211&gt; 833

ggaagaactc caatcttgac agacacaatc tccaagactt catcaatatt aaactcaatt 660  
 cagcttctat cttgccagaa atggaaggac tttctgagtt taccgagtat ctctcagaat 720  
 caagtgggaag tcccatctcc ttttgacatc ttgggaacct tccacatcgg gtggatttct 780  
 gaagcttttc caagccctgt ggtataattt ttccaggang gaagggccaa tttgccttg 840  
 gttgcaa 847

<210> 526  
 <211> 746  
 <212> DNA  
 <213> Homo Sapiens

<400> 526  
 cttgatctct tttttgactt cttttttcac ctcttccttt tttggttttt cctccttctt 60  
 gatagggtgt ttgtcctcct ttttagccac ttctttcttt ggcttttctt tctcctcttt 120  
 cttgtcttca ggctttacct ttgtttcctt tttcacctgc ttctccttgg cagctttggg 180  
 tttgacatct gtggcttgct tctcagccac ctcggcttcc actggagatg gctccttctt 240  
 gctgggaacc tctttttcag tcaactgaagg tttggtctct gttttatttg cttgtctttt 300  
 ttcaccatta ccttttcttt gctttcaact ttgggtggct tttccacgtg attcaacttt 360  
 gtgacctcag gggtttcttc ttttgactcc ttgcgcacgg atttgctagg aagtggtttt 420  
 gcggctggct tcagacttcc tcggctatca gccctctgtt tcagttttgt ttgtttcacc 480  
 acaggagtgg gcacctggcc agtgagatcc ttttgggtgg ccagtggctg cttcagaaaag 540  
 tctagatgtt tgagcttttc caacccttcc aggatgttgt actgggtgct gttcccagga 600  
 aacaggactc ggatgatttt ctcccgcagg gtttgctgga agccacacaa tcaaagatga 660  
 gaactgaaaag taaagtangg aaatcgggaa gaactacttc ttggaccatt taggcagaaa 720  
 ggaattcagc ccttggcttt ggtggg 746

<210> 527  
 <211> 837  
 <212> DNA  
 <213> Homo Sapiens

<400> 527  
 cacttccttc ttctcttctt tcttaacttc cttcttgact tcccttggcg gtgtttcttt 60  
 ctttaacctct ttcttgggtt cttttttctc ttctttcttg atctcttttt tgacttcttt 120  
 tttcacctct tccctttttg gtttttctc cttcttgata ggtgttttgt cctccttttt 180  
 agccacttct ttctttggct tttctttctc ctctttcttg tcttcaggct ttacctttgt 240  
 ttcttttttc accgtcttct ccttggcagc tttgggtttg acatctgttg cttgcttctc 300  
 agccacctcg gctttcactg gagatggctc ttctttgctg ggaacctcct tttcagtcac 360  
 tgaagggttg gtctctgttt ttattggctt gtcttttttc accattacct tttctttgct 420  
 ttcaactttg ggtggctttt ccacgtgatt cacttttgtg acctcagggg tttcttcttt 480  
 tgactccttg cgcacggatt tgctaggaag tgggttttgc gctggcttca gactttctcg 540  
 gctatcagcc ctctgtttca agttttgttt gnttcaccac aggagtgggc acctggccag 600  
 tgagaccttt tgggtggcca agtggtgctc tcagaaaagt ctagaagggt tgagcctttt 660  
 ccaaccttcc caggaagggt gggacctggg tgctggttcc canggaacc aggacctcg 720  
 gatgaatttt ctcccgaag ggtttgcctg gaatgccc nacaatccaaa gaatgaaanc 780  
 tgaaagttaa antagggaat atccgggaga aactaccttc ntggaccatt naggccc 837

<210> 528  
 <211> 822  
 <212> DNA  
 <213> Homo Sapiens

<400> 528  
 ctccggacgt gaaattgaca gtgaaaagta tggcagatga gcaagaaatc atgtgcaaat 60  
 tggaaaagcat taaagagatc aggaacaaga ccttgcatg ggagaagatc aaggctcgtt 120



tgaaggctga	gtttgaggca	cttgagtcag	aggaaaggca	cctgaaggaa	tacaagcagg	180
agatggacct	tctgctacag	gagaagatgg	cccattgtgga	ggaactccga	ctgatccacg	240
ctgacatcaa	tgtgatggaa	aacactatca	aacaatctga	gaatgacct	aacaagctgc	300
tagagtctac	aaggaggctg	catgatgagt	ataagccact	gaaagaacat	gtggatgccc	360
tgcgcagac	tctgggcctg	cagaggctcc	ctgacttggt	tgaagaagag	gagaagcttt	420
ccttgatta	ctttgagaag	cagaaagcag	aatggcagac	agaacctcag	gagccccca	480
tccctgagtc	cctggccgct	gcagcccgt	gccgccaac	agctccaagt	ggctaggaag	540
caggatactc	ggcagacggc	caccttcagg	cagcagcccc	cacctatgaa	ggcctgcttg	600
tcatgtcacc	agcaaattca	ccggaatgca	cctatatgcc	ctctttgcaa	ggccaagagt	660
cggccccgga	acccccaaaa	gccgaacgga	agcaggatga	ataaaggaaa	gggagagccc	720
atgaagcttt	gctaattata	accccttcac	cttgaccaga	gtcattgatg	tcctgatgtg	780
aaacaacct	tggcccaacc	ccacgaagtc	tcctatttaa	tg		822

&lt;210&gt; 529

&lt;211&gt; 842

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 529

actttcaaa	agcagaggaa	cattttatat	agtgaacaca	tacacacttg	gcaatgtaaa	60
actacttaag	gaaggaaaaa	tatccccctc	cccagccagg	tactgagacc	tggggctaaa	120
atthttttgtc	agtcagcccc	catccccatc	ccttatcttc	gagtgacctt	accaggaaaac	180
ctggctttgg	tggaaaggag	agctgtgggg	cttggggagc	ctgatgcctt	ttcttttggg	240
aggaaaggca	cctgcacaat	ccacaggaca	ggagtggcca	gcagctatcc	tgagctgagg	300
ctccagaaga	gttcagatcc	aagagagcaa	gggatgaatg	gaaggaaagt	cccaccacc	360
ttcatgtgta	aagtgtattg	cattttactca	aatctaaatc	tactcctctc	ctccctgcaa	420
tataccattg	agcatgtgcc	agagtaatgg	ttctgaacaa	aagccaacac	agatgtcagc	480
ctgggggcac	tctcagccaa	ggaagccctt	acagccgagc	cctcagccct	aatgacttag	540
gcagtaggtt	aggcaggaga	tgtagaagtt	ggtctggctc	actgatttca	ctgtggaaat	600
ctttacttag	aattttgcaa	gactagatat	tggggaaagg	ttcattgatc	ttaagaatcc	660
caagacacac	agcctagtac	ctaagaatth	taagtatatg	tggggagaca	gaagtgggag	720
aaagctaaag	aattaccggc	catgccttcc	aaatgattat	gaaaanggag	ggcttgggtc	780
aagcttacct	ttgggccttt	aaggatgaan	atgangggta	ggaagtangg	gggatacatg	840
cc						842

&lt;210&gt; 530

&lt;211&gt; 815

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 530

ggaaaaggga	gaaagatagg	gagaaatatt	cccaaagaga	acaagaaaga	gatagacaac	60
aaaatgatca	gaaccgaccc	agtgagaaa	gagagaagga	agagaaaagc	aaagcaaagg	120
aagagcatat	gaaagtaagg	aaggaaagat	atgaaaataa	tgataaatac	agagatagag	180
aaaaacgaga	ggtaggtgtt	cagtcttcag	aaagaaatca	agacagaaa	gaaagcagcc	240
caaattctag	ggcaaaggat	aaattttctg	accaagaaa	atccaacaaa	atgagaaaca	300
tggcaaagg	caaagaaaga	aaccaagaga	aaccctctaa	ttctgaatca	tcactgggag	360
caaaaacac	actcacagag	gaaggggca	agaagggtta	agaacaagag	agaccacctg	420
aggcagttag	caagtgttga	aagcggga	atgaagaaac	tgtaatgtca	gctagagaca	480
ggtacttggc	caggcagatg	gcgcgggtta	atgcaaagac	ctatatttag	aaagaagatg	540
attgatggct	accccaagag	aaagatttaa	ggaagcacag	aaaactgtaa	ttcctggaac	600
ctgctgcgta	aaaccataaa	ggagtgtgtt	accagtagt	ttggagggca	tttttaaat	660
tattttcaaa	atttttaagt	aaaagtcagt	cttaagcttg	gatgttttgg	aatgtggatg	720
tttggtgaa	tttatatata	ggngtactc	atcaataccn	cattctttgt	gganttcaag	780
aaccggttaa	gagtgtgctt	aattccctga	ngtac			815

<210> 531  
 <211> 857  
 <212> DNA  
 <213> Homo Sapiens

<400> 531  
 aaaatgtata agcatatcat tttatatttca ttttaagccaa ctatgctgta agctatttag 60  
 acaagatgat tcacatttta tacttaaata caaatctcag aacataaagt atattttctg 120  
 tttttcaaat ccatatttta tctgaaatac atttcctgca acaaaacatt attagaagag 180  
 ttaaattatt tatttaaaaa aaatttttta gagacagggg ctcatctgtg tgcccagggt 240  
 ggagtgcagt ggcatgatca tacctcactg taacatcaaa ttcctaggct caagtgatct 300  
 tcttgccctca gcctcttgaa cagctgggac tacaggcatg gactaccatg ctaggctttt 360  
 tgttttttaa atagagacaa ggtcttatta tctgacctag gctgggtctg aatgcctagc 420  
 ctcaatatcc ttctgccttg gcctcccaaa atgttggtat tacaggcacg agctaccgta 480  
 tctggccaaa attatttttt aatgggtgta gtggagcaaa ttttctcat tatgtacct 540  
 cagggaatta gcacactctt aacgggtctt gaatcaacaa agaattgtgt attgatgagt 600  
 acacactata tataaattca gccaaacatc cacatccaaa catccaagct gtaagactga 660  
 cttttaactt aaaattttga aaataaattt aaaaagccct tcaaaactact ggtaacacac 720  
 ttenttatgg tttacccac aggnncagg aattccagtt tctgggcttn ccttaaacct 780  
 ttccttgggg tagcccatca atcatctctt tctcaaaaaa aggcntttgc attaacccgg 840  
 gccatttggc ctggcca 857

<210> 532  
 <211> 736  
 <212> DNA  
 <213> Homo Sapiens

<400> 532  
 cctggatgct gtgctgattg aggatgagct ggaggaactc caccgctact gccaggaggt 60  
 gtttggaagg gtctcccggt tccaccggcg gctcacctcc tgcactccgg gcttgggaaga 120  
 tgaaaaggag gcctctgaga atgaacaga catggaagac ccagagaaa tccagactga 180  
 ttcttggcgt aaacggggag agagcgagga accgtcatct cctcagtccc tgtgtcatct 240  
 agtggcccca gggcacgagc ggtctggctg cgagaccctc gtcagcgtgg actccatccc 300  
 cctggagtgg gaccacacag gcgacgtggg gggctcctcc tctcacgaag aggacgagga 360  
 gggcccatac tacagcgcac tgtcagatgt agaaatccct gaaaatcctg aggcatact 420  
 taaaatgacc aaaaaaactt tgaaagcgct ttctggtaaa tccatttcgg atggccactc 480  
 gtggcatgtt ccgacagcc ctctctgtcc cgagcatcac tacaagcaaa tggaagggtga 540  
 caggaatgtt ccacctgttc ccctgctgc cagcaccctt tataaaccac cctatggaaa 600  
 gctactatta cctccaggca cggatgggtg caaagaaagc ccgagagtc tgaatggcaa 660  
 cccacagcag gaagacnggg gactggcccc gtattacaga gcaacagtca ggggtgccttc 720  
 gacagatggg agatga 736

<210> 533  
 <211> 678  
 <212> DNA  
 <213> Homo Sapiens

<400> 533  
 ctggctaatt ttgtttttta atganaaaca tntgagttgt ncatatcaca aacagnttca 60  
 agtttntggn ccaaccccc gcccccaccc ccgcccnggc caaacagtta aaacccaaag 120  
 caaagcatca ntttgatgt gaaaaagtnt taaaaatta acttacaaaa ncatccctat 180  
 caagtgcgta gttnggcatt tactttacat tagtcaaaag ctccagctaa aatctaattt 240  
 ttttaaaaaa aaatcgaagt ttacattatt catacanatt gggcattgtt aaaaaatatg 300  
 cncaataaac cacatccatg caatacaatt tntttaaaaa tttaaagcan tntaaaagag 360  
 cagagctagg tnttgaacan aacatttttg ngataaccg gcagntcaaa attgccagct 420

gattggagta aaactgattn taagcgtatt aaatatgatn gatngtttcc atcagctaag	480
ggngcctatg agttttctgaa ccatttntag ggnggaatgt cctcgcttgc ttcnataata	540
tatgtgatgg acaccactgc tcattgncca tacctacatt ataataatgc tgttttacia	600
acaaaccaga attcacaag ngcttggctn ttcaggaaac tgacatttcc agagatccct	660
aaactaaatc aactagtt	678

&lt;210&gt; 534

&lt;211&gt; 789

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 534

ggtggatgag ggtgctgggg acagtgtctgc ggtggccagt ggtggtgccc agaccttggc	60
ccttgccggg tcccctgccc catcggggca ccccaaggct ggacacagtg agaacggggg	120
tgaggaggac acagaaggtc gaacggggcc caaagaaggc acccctggga gcccatcgga	180
gacccaggc cccagcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	240
gacccaggc cccgcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	300
gacccaggc cccgcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	360
gacccaggc cccgcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	420
gacccaggc cccgcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	480
gacccaggc cccgcccag caggacctgc aggggacgag ccagccgaga gcccatcgga	540
gacccaggc cccagcccag caggacctgc aagggatgag ccagccaagg cgggggaggg	600
agcagagttg caggacgcag aggtggagtc ttctgccaaag ttctgggaag cnttaagga	660
aaggagttgc ccgtcggcgt cttggtcctc tggctcctgt tgaagggtt gggnttccg	720
gacttnttgn ggcttccctt aaggtttggg ttgtgacct gaccatggan ccacaatgct	780
gggcttctt	789

&lt;210&gt; 535

&lt;211&gt; 802

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 535

caaagtcaaa tgaatttatt cagaaaaggc cttgcttggg atcagactaa gaaaagcagc	60
cctgcccggc gccccccact ccanaagggt caatttacia agacaggggc gcaggggana	120
gctgggtggg gaagacacag ccaggccagg aggtctctgc aggccttggg cttccctgag	180
ggcctcggc cttctggttg ctgctatagt ggcccacag gaggccagca ctgtgggtca	240
tgggtcacgg gtcacgaagc anagcctgag gggagcccgc agcagctccg gagggcccag	300
cccctgcagc agggacagga ggaccaagac gccgacgggc actcctttcc ttaaggcttc	360
ccanacttgg cagaagactc cacctctgct tcttgaact ctgctgctc cccgccttg	420
gctggctcat ccctttagg tcttgcggg ctggggcctg ggtctctcga tgggctctcg	480
gctggctcgt cccctgcagg tcttgcggg cgggggcctg ggtnttccga tgggctctcg	540
gctggctcgt cccctgcagg tcttgcggg cgggggcctg ggtctctcga tgggctctcg	600
gctggctcaa tccctttag gtcttgcgg ggttggggcc tgggggtctt ccgaatgggc	660
ttctcggctg gcttctgccc ttgcaagtc ttgccgggc gggggccctg ggggtcttcn	720
aatgggcttt ttgggttggg ttgggcccc ttgaagggtc ctggctgggc cggggggccc	780
tgggggtctt ccnaagggg ct	802

&lt;210&gt; 536

&lt;211&gt; 901

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 536

aaaagaatgg aaaagaaaat acagagagaa cgagaaatgg aaaaggggga gtttgatgat	60
---	----

```

aaagaagcat ttgtgacatc tgcataataag aaaaaactgc aagagagagc tgaagaagaa 120
gaaagagaaa agagggtctg tgcactggaa gcatgtttgg atgtaaccaa gcagaaagat 180
ctcagtggat tttataggca cctattaaat caagcagttg gtgaagagga agtacctaaa 240
tgcagctttc gtgaagccag atctgggtata aaggaagaaa aatcaagggg cttctccaat 300
gaagtaagtt caaaaaacag aataaccacaa gagaaatgca ttcttcaaac tgatgtgaaa 360
gtagaggaaa acccagatgc agacagtgc ttcgatgcta agagcagtgc ggatgatgaa 420
atagaagaaa ctagagtga ctagcagaagg gaaaagggtca tagagacccc tgagaatgac 480
ttcaagcacc acaggagtca aaaccactct cggtcaccta gtgaagaaag agggcacagt 540
accaggcacc acacgaaagg atcacgaacg tgcagaggac atgagaaaag ggaagatcag 600
caccaacaga agcaatccag agaccaaaga gaaccattac actgacccgt gantaccgga 660
aagaaaggga ttctcatagc acagagaggc cagtcattag agattcccat tggagagacc 720
ttgaacagga agataaacc anggccaagg gnccaaggag gaaagaagt acngaagtnt 780
ggnaaaagg agaaaggatt gggagaaata ntcccaagg aggaccagga aggagattgc 840
ccaccaaata gatccgaaac cgacccaatg agaaaggaga gaaggaagag aaaagccaag 900
c 901

```

&lt;210&gt; 537

&lt;211&gt; 761

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 537

```

atgtataagc atatcatttt attttcattt aagccaacta tgctgtaagc tatttagaca 60
agatgattca cttttatatac ttaataacaa atttcagaac ataaagtata ttttctgttt 120
ttcaaatcca ttttttatct gaataacatt tcctgcaaca aaacattatt agaagagtta 180
aattatttat ttaaaaaaaa ttttttagag acagggtctc attctgttgc ccagggttga 240
gtgcagtggc atgatcatac ctactgttaa catcaaattc ctaggctcaa gtgatcttct 300
tgctcagcc tnttgaacag ctgggactac aggcattggac taccatgcta ggctttttgt 360
tttttaata gagacaaggc cttattatcc tgcctaggct ggtcttgaat gcctagcctc 420
aatatccttc tgcttggcc tcccaaatg ttggtattac aggcacgagc taccggatct 480
ggccaaatt attttttaat ggtttagtg gagcaaattt tcctcattat gtacctacag 540
ggaattaagc cactcttaac ggttcttgaa tcnncaaaga atgtggnatt gatgagttcn 600
cactatatat aaattcagcc caaacatcca cattcnaaca tnccagctgt aagactgact 660
tttaacttaa aattttgaaa natnaattt aaaaatgcc tncaaaacta ctgggaacac 720
cctcccttta tgggtttanc ccagcagggt tccaaggaat t 761

```

&lt;210&gt; 538

&lt;211&gt; 869

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 538

```

cgggaacaag atggcagccc ccatacctca agggttctct tgtttatcga ggtttttggg 60
ctggtggttt cggcagccag ttctgggtgac tcagtcgca gctatagttc cagtaagaac 120
taaaaaacgt ttcacacctc ctatttatca acctaaattt aaaacagaaa aggagttat 180
gcaacatgcc cggaaagcag gattggttat tcctccagaa aaatcggacc gttccataca 240
tctggcctgt acagctggta tatttgatgc ctatgttct cctgagggtg atgcacgcac 300
atcatctctt tcaaaggagg gactgataga gagaactgaa cgaatgaaga agactatggc 360
atcacaagtg tcaatccgga ggataaaaga ctatgatgcc aactttaaaa taaaggactt 420
ccctgaaaaa gctaaggata tctttattga agctcacctt tgtctaaata actcagacca 480
tgaccgactt cataccttgg taactgaaca ctgtttcca gacatgactt gggacatcaa 540
atataagacc gtccgctgga gctttgtgga atcttttagag ccctctcatg ttgttcaagt 600
tcgctgttca agtatgatga accagggcaa cgtgtaccgn ccagatcacc gtaccgcatg 660
cacaccggc agactctggc catctatgac cgggtttggc ccggttgatg tatgggccaag 720
gnagatgtcc ccaggatgtc ctggaagtat gttggantcg aaaagcagnt tgccaaancc 780

```

ctatggaagc tggagaagcn tacccaagac ggtnccectt gggcaccccc ttaagcaggc 840  
catccttttaa aacgggggatg atcccttgg 869

<210> 539  
<211> 760  
<212> DNA  
<213> Homo Sapiens

<400> 539  
aagggataaa ttatttcttt ggatttatat ttttccataa aatgcaaagc ctgattcatc 60  
agtgaagtcag tatatgaaaa agggcctctt aaatgtctta taaacactaa ttattcttcc 120  
ccagtcttca ttctcttaaa gtcacatcgc tcacaagtag gctcatcttc cacttctgcc 180  
atctgaaggc tgggtccatgc ccagcctgaa ccaggggaaa tgtgcagaac tcacccaaaat 240  
ttttccaaca ccttgacaac atttcatttc aaactctgat ccctgccctg tgattacaaa 300  
gaggatgctg ctgggtgtct ctcacagtcg ctgctgtggg aaaaactgat atccaatgtt 360  
ctctgaaaca tactgtcttt catctagact cagaagctag acataaaaatt taaaaaagaa 420  
gagtgtccat ggccatgtta tacctgccac ctgctagggc ccagtcatca gtcattgttg 480  
ctgatgatga gactgctgaa aagacctgag caggatggga gagaacaaaag gtagttcttt 540  
ttatagcatg aggggaatgg gagacttcaa agcttncagg cagcctcatc accccaggct 600  
tcaccctaga aagtcatttt tgncatcagg gctaacctga ngcttctggg gcctctcctt 660  
gggcctcttc ataactctct tctgggnttc agcttgaagg gccaggggat tcatnaccgg 720  
gctttaaagg gatggggcct gcttaagggg ggtgccccat 760

<210> 540  
<211> 874  
<212> DNA  
<213> Homo Sapiens

<400> 540  
ggagcactgc ctcaaacatg ggctgaaagt taagaagagt tttattggcc aaaataaatc 60  
attcttttgtt ccttttgagc tgggtggagaa actttgtcca gaagcatcag atatagcgac 120  
tagtgtcaga aatcttccag aattaaagac agctgtggga agaggccgag cgtggcttta 180  
tcttgactc atgcaaaaaga aactggcaga ttatctgaaa gtgcttatag acaataaaca 240  
tctcttaagc gagttctatg agcctgaggc tttaatgatg gaggaagaag ggatgggtgat 300  
tgttgggtctg ctgggtgggac tcaatgttct cgatgccaat ctctgcttga aaggagaaga 360  
cttggattct caggttggag taatagattt ttccctctac cttaaggatg tgcaggatct 420  
tgatgggtggc aaggagcatg aaagaattac tgatgtcctt gatcaaaaaa attatgtgga 480  
agaacttaac cggcacttga gctgcacagt tggggatctt caaaccaaga tagatggctt 540  
ggaaaagact aactcaaaagc ttcaagaaga gctttcagct gcaacagacc gaatttgctc 600  
acttcaagaa gaacagcagc agttaaagag aacnaaatga attaatcga gaaagaagtn 660  
aaaagagtgt agaagatacn aaacaggatc caaagttgag ctggagactt acagccaact 720  
tcgcaaggtc tggatgaaat gtcnntgatg tgtggaagca cttaaagagg agaagaaagt 780  
ccggttggaa ctggaaaaaa gaactggagn tccaaatggg aatgaaaacc caaatnggaa 840  
atgccatgaa gttcctggna aaggcccccc ccaa 874

<210> 541  
<211> 729  
<212> DNA  
<213> Homo Sapiens

<400> 541  
gaaaaataaa tgattttatt gcaggggcaa tgataggtag tcacaagggc atgaaatggc 60  
agatctcttg tctgaagcag agaaggcaca ctggcagact ccatgtgtgt caaacgctgt 120  
gcatgaatca ggtttttaga aggaaggtag gagaggaaaa ctactcacta gcagaactga 180  
actgctgtaa aatagggttaa attctttgaa aagtgaaaaa tgatagtagc aaaatcatga 240

```

agttgtatct gaaccagagc cgtgatgtaa ccaagtaaga tggaagtttc catccagagg 300
agttaattcc gaacaagtca cagaaagggtg agagctgccg gttccggcac gctgtcttct 360
ggagtgccag tgaccgggca agaaatttga ttctttcctt tgattctctt gggaaagaac 420
acatttccca agcccttgga gaccacaggg gtttggcact gtccgtgagg ctgtgctcct 480
gaggacggac gttcaggagg ccgtggagga gcagcgctgc aggagcaggg tgtggcagct 540
gtcgcacact cgcaccggct tggggtagga gggcagggcc cagctcggtg ctgggagcag 600
gtgtttgcan aagatgtggc ccacagttcc ggcagtnngt gctttctccg gggaaaatgg 660
agaacttctt ttntcacacn tggctaccag tggggtcgnt ttcggcatct tttcaagcca 720
ggccgtggg 729

```

<210> 542  
 <211> 830  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 542
gggacagcgg ggacggcagc gcgcgcgcag cttctaagtg ccagatgatg gaggagcgtg 60
ccaacctgat gcacatgatg aaactcagca tcaagggtgt gctccagtcg gctctgagcc 120
tgggcccagc cctggatgcg gaccatgcc ccttcagca gttctttgta gtgatggagc 180
actgcctcaa acatgggctg aaagttaaga agagttttat tggccaaaat aaatcattct 240
ttggtccttt ggagctgggt gagaaacttt gtccagaagc atcagatata gcgactagt 300
tcagaaatct tcagaaatta aagacagctg tgggaagagg ccgagcgtgg ctttatcttg 360
cactcatgca aaagaaactg gcagattatc tgaaagtgt tatagacaat aaacatctct 420
taagcgagtt ctatgagcct gaggccttaa tgatggagga agaagggatg gtgattgttg 480
gtctgctggg gggactcaat gttctcgatg ccaatctctg cttgaaagga gaagacttgg 540
attctcaggt tggagtaata gatttttccc tctaccttaa ggatgtgcag gatcttgatg 600
gtggcaagga gcatgaaaga attactgatg tccttgatca aaaaaattat gtggaagaac 660
ttaaccggc acttgagctg caccagttgg ggatctttca acccaagata gatggcttg 720
gaaaagacta actcaaagct tcagaagag ntttagctgc accagaccga attttgcctc 780
tttcaagaaa nacagcacn gttaagaaaa ccaaatggaa ttaatttcag 830

```

<210> 543  
 <211> 733  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 543
gaaaaataaa tgattttatt gcagggccaa tgataggtag tcacaagggc atgaaatggc 60
agatctcttg tctgaagcag agaaggcaca ctggcagact ccatgtgtgt caaacgctgt 120
gcatgaatca ggttttttaga aggaaggtag gagaggaaaa ctactcacta gcagaactga 180
actgctgtaa aataggttaa attctttgaa aagtgaaaaa tgatagtagc aaaatcatga 240
agttgtatct gaaccagagc cgtgatgtaa ccaagtaaga tggaagtttc catccagagg 300
agttaattcc gaacaagtca cagaaagggtg anagctgccg gttccggcac gctgtcttct 360
ggagtgccag tgaccgggca agaaatttga ttctttcctt tgattctctt gggaaagaac 420
acatttccca agcccttgga gaccacaggg gtttggcact gtccgtgagg ctgtgctcct 480
gaggacggac gttcaggagg ccgtggagg agcagcgctg caggagcagg gtgtggcagc 540
tgtcgcacac tcgcaccggc ttgggtagg anggcagggc tagctcggtg ctggancang 600
tgttgcaaaa naatgtggc acagntncgg cagtgggtgc tttntccggg aaaagggaga 660
acttcttnt cacacttggc tacagnngng gncgctttcg ncatcttttt ancccaggcg 720
nnggcccttt caa 733

```

<210> 544  
 <211> 852  
 <212> DNA  
 <213> Homo Sapiens

<400> 544  
 gtggagaaat ggcgtatcag ctgaataaaa ccaacatgga gaaggatgag gcagaaaagg 60  
 agcacagaga gttcagagca aaaactaaca gggatcttga aattaaagat caggaaatag 120  
 agaaattgag aatagaactg gatgaaagca aacaacactt ggaacaggag cagcagaagg 180  
 cagccctggc cagagaggag tgcctgagac taacagaact gctgggcgaa tctgagcacc 240  
 aactgcacct caccagatct gaaatagctc aactcagtca agaaaaaagg tatacatatg 300  
 ataaattggg aaagttacag agaagaaatg aagaattgga ggaacagtgt gtccagcatg 360  
 ggagagtaca tgagacgatg aagcaaaggc taaggcagct ggataagcac agccaggcca 420  
 cagcccagca gctggtgcag ctctcagca agcagaacca gcttctcctg gagaggcaga 480  
 gcctgtcgga agaggtggac cggctgcgga cccagttacc cagcatgcca caatctgatt 540  
 gctgacctgg atggaacaga gtgaaataaa tgaattacaa agagatattt acattcatct 600  
 ggtttagact taatatgcca caacgcacca cgacctccc aggggtgacac cgcctcagcc 660  
 tgcagtggg ctggtctcca tcaacgcggg cgctgtcccc gcacgcagtc gggctggagc 720  
 tggagtctga ctctagctga gcagactcct ggtgtatgtt ttcagaaatg gcttgaagtt 780  
 atgtgtttaa atctgctcat tcgtatgcta gggtatacat atgattttca ataaatgaac 840  
 tttttaaaga aa 852

<210> 545

<211> 414

<212> PRT

<213> Homo Sapiens

<400> 545  
 Leu Leu Asp Ala Ser Glu Lys Leu Lys Leu Thr Tyr Glu Glu Lys Cys  
 1 5 10 15  
 Glu Ile Glu Glu Ser Gln Leu Lys Phe Leu Arg Asn Asp Leu Ala Glu  
 20 25 30  
 Tyr Gln Arg Thr Cys Glu Asp Leu Lys Glu Gln Leu Lys His Lys Glu  
 35 40 45  
 Phe Leu Leu Ala Ala Asn Thr Cys Asn Arg Val Gly Gly Leu Cys Leu  
 50 55 60  
 Lys Cys Ala Gln His Glu Ala Val Leu Ser Gln Thr His Thr Asn Val  
 65 70 75 80  
 His Met Gln Thr Ile Glu Arg Leu Val Lys Glu Arg Asp Asp Leu Met  
 85 90 95  
 Ser Ala Leu Val Ser Val Arg Ser Ser Leu Ala Asp Thr Gln Gln Arg  
 100 105 110  
 Glu Ala Ser Ala Tyr Glu Gln Val Lys Gln Val Leu Gln Ile Ser Glu  
 115 120 125  
 Glu Ala Asn Phe Glu Lys Thr Lys Ala Leu Ile Gln Cys Asp Gln Leu  
 130 135 140  
 Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg Leu Glu Lys Glu Leu Ala  
 145 150 155 160  
 Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys Asp Met Met Lys Lys Glu  
 165 170 175  
 Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser Lys Met Leu Ile Leu Ser  
 180 185 190  
 Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu Lys Val Thr Lys Glu  
 195 200 205  
 Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Ile Gln Ser Gln Leu Ala  
 210 215 220  
 Ser Arg Glu Met Asp Val Thr Lys Val Cys Gly Glu Met Arg Tyr Gln  
 225 230 235 240  
 Leu Asn Lys Thr Asn Met Glu Lys Asp Glu Ala Glu Lys Glu His Arg  
 245 250 255

Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu Glu Ile Lys Asp Gln Glu  
 260 265 270  
 Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu Ser Lys Gln His Leu Glu  
 275 280 285  
 Gln Glu Gln Gln Lys Ala Ala Leu Ala Arg Glu Glu Cys Leu Arg Leu  
 290 295 300  
 Thr Glu Leu Leu Gly Glu Ser Glu His Gln Leu His Leu Thr Arg Ser  
 305 310 315 320  
 Glu Ile Ala Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu  
 325 330 335  
 Gly Lys Leu Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln  
 340 345 350  
 His Gly Arg Val His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp  
 355 360 365  
 Lys His Ser Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys  
 370 375 380  
 Gln Asn Gln Leu Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp  
 385 390 395 400  
 Arg Leu Arg Thr Gln Leu Pro Ser Met Pro Gln Ser Asp Cys  
 405 410

&lt;210&gt; 546

&lt;211&gt; 2885

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 546

```

ggaattcctc ttgtcgaagt caaaggagcc cacaccaggc ggccctcaacc attccctccc      60
acagcaccccc aaatgctggg gagcccacca tgcttctttg gaccagagtt cccctcccca      120
gagcggccccc cctgggacgc ctccctccta caaactgcct ttgectgggc cctacgacag      180
tcgagacgac ttcccccctcc gcaaaacagc ctctgaaccc aacttgaaag tgcgttcaag      240
gctaaaacag aaggtggctg agcggagaag cagtcccctc ctgctgcgca aggatgggac      300
tggtattagc acctttaaga agagagctgt tgagatcaca ggtgccgggc ctggggcgctc      360
gtccgtgtgt aacagcgcac ccggctccgg cccagctctt cccaacagct cccacagcac      420
catcgctgag aatggcttta ctggctcagt ccccaacatc cccactgaga tgctccctca      480
gcaccgagcc ctccctcttg acagctcccc caaccagttc agcctctaca cgtctccttc      540
tctgcccac atctccctag ggctgcaggc caggtcact gtcaccaact cacacctcac      600
tgctccccc aagctgtcga cacagcagga ggccgagagg caggccctcc agtccctgcg      660
gcagggtggc acgctgaccg gcaagttcat gagcacatcc tctattcctg gctgcctgct      720
ggcgctggca ctggaggggc acgggagccc ccacgggcat gcctccctgc tgcagcatgt      780
gctgttgctg gagcaggccc ggcagcagag caccctcatt gctgtgccac tccacgggca      840
gtccccacta gtgacgggtg aacgtgtggc caccagcatg cggacggtag gcaagctccc      900
gcggcatcgg cccctgagcc gactcagtc ctcaccgctg ccgcagagtc ccagggccct      960
gcagcagctg gtcatgcaac aacagcacca gcagttcctg gagaagcaga agcagcagca     1020
gtacagctg ggcaagatcc tcaccaagac aggggagctg cccaggcagc ccaccaccca     1080
ccctgaggag acagaggagg agctgacgga gcagcaggag gtcttgctgg gggaggaggc     1140
cctgaccatg ccccgaggag gctccacaga gactgagagc acacaggaag acctggagga     1200
ggaggacgag gaagaggatg gggaggagga ggaggattgc atccaggtta aggacgagga     1260
ggcgagagat ggtgtgagg aggggcccga cttggaggag cctggtgctg gatacaaaaa     1320
actgttctca gatgcccaac cgctgcaacc tttgcaggtg taccaagcgc ccctcagcct     1380
ggccactgtg ccccaaccaag ccctggggcg tacccaatcc tcccctgctg cccctggggg     1440
catgaagaac ccccagacc aaccctcaa gcacctctc accacaagtg tggctctacga     1500
cacgttcatg ctaaagcacc agtgcattg cggaacaca cacgtgcacc ctgagcatgc     1560
tgcccgatc cagagcatct ggtcccggct gcaggagaca ggcctgctta gcaagtgcga     1620
gcggatccga ggtcgcaaaag ccacgctaga tgagatccag acagtgcact ctgaatacca     1680
  
```



```

caccctgctc tatgggacca gtccctcaa ccggcagaag ctagacagca agaagttgct 1740
cggccccatc agccagaaga tgtatgctgt gctgccttgt gggggcatcg gggtaggacag 1800
tgacaccgtg tggaatgaga tgcactcctc cagtgcctgt cgcattggcag tgggctgcct 1860
gctggagctg gccttcaagg tggctgcagg agagctcaag aatggatttg ccatcatccg 1920
gccccagga caccacgccg aggaatccac agccatggga ttctgcttct tcaactctgt 1980
agccatcacc gcaaaactcc tacagcagaa gttgaacgtg ggcaagggtcc tcatcgtgga 2040
ctgggacatt caccatggca atggcaccca gcaggcgttc tacaatgacc cctctgtgct 2100
ctacatctct ctgcatcgct atgacaacgg gaacttcttt ccaggctctg gggctcctga 2160
agaggttggt ggaggaccag gcgtggggta caatgtgaac gtggcatgga caggaggtgt 2220
ggaccccccc attggagacg tggagtacct tacagccttc aggacagtgg tgatgccccat 2280
tgcccacgag ttctcacctg atgtggctct agtctccgcc gggtttgatg ctgttgaaag 2340
acatctgtct cctctgggtg gctactctgt caccgccaga tgttttgccc acttgaccag 2400
gcagctgatg accctggcag ggggccgggt ggtgctggcc ctggaggagg gccatgactt 2460
gaccgccatc tgtgatgcct ctgaagcttg tgtctcggct ctgctcagtg taaagctgca 2520
gcccttggat gaggcagtct tgcagcaaaa gcccaacatc aacgcagtgg ccacgctaga 2580
gaaagtcacg gagatccaga gcaaactctg gagctgtgtg cagaagtctg ccgctgggtct 2640
ggggccggtc ctgcgagggg cccaagcagg tgagaccgaa gaagccgaaa tgtgaacgcc 2700
atggccttgc tgttgggtgg ggccgaacag gcccaagctg cggcagcccg ggaacacagc 2760
cccaggccgg cagaggagcc catggagcag gagcctgccc tgtgacgccc cggcccccat 2820
cccttgggga ttcaccattg tgattttgtt tattttttct attaaaaaca aaaagttaaa 2880
aattt

```

&lt;210&gt; 547

&lt;211&gt; 897

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 547

```

Glu Phe Leu Leu Ser Lys Ser Lys Glu Pro Thr Pro Gly Gly Leu Asn
 1           5           10          15
His Ser Leu Pro Gln His Pro Lys Cys Trp Gly Ala His His Ala Ser
      20           25           30
Leu Asp Gln Ser Ser Pro Pro Gln Ser Gly Pro Pro Gly Thr Pro Pro
      35           40           45
Ser Tyr Lys Leu Pro Leu Pro Gly Pro Tyr Asp Ser Arg Asp Asp Phe
      50           55           60
Pro Leu Arg Lys Thr Ala Ser Glu Pro Asn Leu Lys Val Arg Ser Arg
      65           70           75           80
Leu Lys Gln Lys Val Ala Glu Arg Arg Ser Ser Pro Leu Leu Arg Arg
      85           90           95
Lys Asp Gly Thr Val Ile Ser Thr Phe Lys Lys Arg Ala Val Glu Ile
      100          105          110
Thr Gly Ala Gly Pro Gly Ala Ser Ser Val Cys Asn Ser Ala Pro Gly
      115          120          125
Ser Gly Pro Ser Ser Pro Asn Ser Ser His Ser Thr Ile Ala Glu Asn
      130          135          140
Gly Phe Thr Gly Ser Val Pro Asn Ile Pro Thr Glu Met Leu Pro Gln
      145          150          155          160
His Arg Ala Leu Pro Leu Asp Ser Ser Pro Asn Gln Phe Ser Leu Tyr
      165          170          175
Thr Ser Pro Ser Leu Pro Asn Ile Ser Leu Gly Leu Gln Ala Thr Val
      180          185          190
Thr Val Thr Asn Ser His Leu Thr Ala Ser Pro Lys Leu Ser Thr Gln
      195          200          205
Gln Glu Ala Glu Arg Gln Ala Leu Gln Ser Leu Arg Gln Gly Gly Thr

```

```

      210              215              220
Leu Thr Gly Lys Phe Met Ser Thr Ser Ser Ile Pro Gly Cys Leu Leu
225              230              235              240
Gly Val Ala Leu Glu Gly Asp Gly Ser Pro His Gly His Ala Ser Leu
      245              250              255
Leu Gln His Val Leu Leu Leu Glu Gln Ala Arg Gln Gln Ser Thr Leu
      260              265              270
Ile Ala Val Pro Leu His Gly Gln Ser Pro Leu Val Thr Gly Glu Arg
      275              280              285
Val Ala Thr Ser Met Arg Thr Val Gly Lys Leu Pro Arg His Arg Pro
      290              295              300
Leu Ser Arg Thr Gln Ser Ser Pro Leu Pro Gln Ser Pro Gln Ala Leu
305              310              315              320
Gln Gln Leu Val Met Gln Gln Gln His Gln Gln Phe Leu Glu Lys Gln
      325              330              335
Lys Gln Gln Gln Leu Gln Leu Gly Lys Ile Leu Thr Lys Thr Gly Glu
      340              345              350
Leu Pro Arg Gln Pro Thr Thr His Pro Glu Glu Thr Glu Glu Glu Leu
      355              360              365
Thr Glu Gln Gln Glu Val Leu Leu Gly Glu Gly Ala Leu Thr Met Pro
      370              375              380
Arg Glu Gly Ser Thr Glu Ser Glu Ser Thr Gln Glu Asp Leu Glu Glu
385              390              395              400
Glu Asp Glu Glu Glu Asp Gly Glu Glu Glu Asp Cys Ile Gln Val
      405              410              415
Lys Asp Glu Glu Gly Glu Ser Gly Ala Glu Glu Gly Pro Asp Leu Glu
      420              425              430
Glu Pro Gly Ala Gly Tyr Lys Lys Leu Phe Ser Asp Ala Gln Pro Leu
      435              440              445
Gln Pro Leu Gln Val Tyr Gln Ala Pro Leu Ser Leu Ala Thr Val Pro
      450              455              460
His Gln Ala Leu Gly Arg Thr Gln Ser Ser Pro Ala Ala Pro Gly Gly
465              470              475              480
Met Lys Asn Pro Pro Asp Gln Pro Val Lys His Leu Phe Thr Thr Ser
      485              490              495
Val Val Tyr Asp Thr Phe Met Leu Lys His Gln Cys Met Cys Gly Asn
      500              505              510
Thr His Val His Pro Glu His Ala Gly Arg Ile Gln Ser Ile Trp Ser
      515              520              525
Arg Leu Gln Glu Thr Gly Leu Leu Ser Lys Cys Glu Arg Ile Arg Gly
      530              535              540
Arg Lys Ala Thr Leu Asp Glu Ile Gln Thr Val His Ser Glu Tyr His
545              550              555              560
Thr Leu Leu Tyr Gly Thr Ser Pro Leu Asn Arg Gln Lys Leu Asp Ser
      565              570              575
Lys Lys Leu Leu Gly Pro Ile Ser Gln Lys Met Tyr Ala Val Leu Pro
      580              585              590
Cys Gly Gly Ile Gly Val Asp Ser Asp Thr Val Trp Asn Glu Met His
      595              600              605
Ser Ser Ser Ala Val Arg Met Ala Val Gly Cys Leu Leu Glu Leu Ala
      610              615              620
Phe Lys Val Ala Ala Gly Glu Leu Lys Asn Gly Phe Ala Ile Ile Arg
625              630              635              640
Pro Pro Gly His His Ala Glu Glu Ser Thr Ala Met Gly Phe Cys Phe
      645              650              655

```

Phe Asn Ser Val Ala Ile Thr Ala Lys Leu Leu Gln Gln Lys Leu Asn  
 660 665 670  
 Val Gly Lys Val Leu Ile Val Asp Trp Asp Ile His His Gly Asn Gly  
 675 680 685  
 Thr Gln Gln Ala Phe Tyr Asn Asp Pro Ser Val Leu Tyr Ile Ser Leu  
 690 695 700  
 His Arg Tyr Asp Asn Gly Asn Phe Phe Pro Gly Ser Gly Ala Pro Glu  
 705 710 715 720  
 Glu Val Gly Gly Gly Pro Gly Val Gly Tyr Asn Val Asn Val Ala Trp  
 725 730 735  
 Thr Gly Gly Val Asp Pro Pro Ile Gly Asp Val Glu Tyr Leu Thr Ala  
 740 745 750  
 Phe Arg Thr Val Val Met Pro Ile Ala His Glu Phe Ser Pro Asp Val  
 755 760 765  
 Val Leu Val Ser Ala Gly Phe Asp Ala Val Glu Gly His Leu Ser Pro  
 770 775 780  
 Leu Gly Gly Tyr Ser Val Thr Ala Arg Cys Phe Gly His Leu Thr Arg  
 785 790 795 800  
 Gln Leu Met Thr Leu Ala Gly Gly Arg Val Val Leu Ala Leu Glu Gly  
 805 810 815  
 Gly His Asp Leu Thr Ala Ile Cys Asp Ala Ser Glu Ala Cys Val Ser  
 820 825 830  
 Ala Leu Leu Ser Val Lys Leu Gln Pro Leu Asp Glu Ala Val Leu Gln  
 835 840 845  
 Gln Lys Pro Asn Ile Asn Ala Val Ala Thr Leu Glu Lys Val Ile Glu  
 850 855 860  
 Ile Gln Ser Lys His Trp Ser Cys Val Gln Lys Phe Ala Ala Gly Leu  
 865 870 875 880  
 Gly Arg Ser Leu Arg Gly Ala Gln Ala Gly Glu Thr Glu Glu Ala Glu  
 885 890 895  
 Met

<210> 548  
 <211> 1298  
 <212> DNA  
 <213> Homo Sapiens

<400> 548  
 ggctgctgaa atgactgcga accggcttgc agagagcctt ctggctttga gccancagga 60  
 agaactagcg gatttgccaa aagactacct cttgagttag agtgaagatg agggggacaa 120  
 tgatggagag agaaagcatc naaagcttct ggaagcaatc agttcccttg atggaaagaa 180  
 taggcggaaa ttggctgana ggtctgaggc tagtctgaag gtgtcagagt tcaatgtcag 240  
 ttctgaagga tcaggagaaa agctgggtcct tgcagatctg cttgagcctg ttaaaacttc 300  
 atcttctttg gccactgtga aaaagcaact gagtagagtc anatcaaaga anacagtgga 360  
 gttacctctg aacaaagaag agattgaacg gatccacaga gaatagcatt caataaaacg 420  
 cacaagtcct ctccaaatgg gacctgtcgt tcctgaagaa ccggcaggca gacgagctgg 480  
 tttttccctt ggagaaagag gagccagcca ttgctcccat tgaacatgtg ctcagtggct 540  
 ggaaggcaag aactcccctg gagcaggaaa ttttcaacct cctccataag aacaagcagc 600  
 cagtgcacaga ccccttactg accctgtggg aaaaggcctc tctccgagcc atgagcctag 660  
 aagaggcaaa gatgcgacga gcagagcttc agagggctcg ggctctgcag tcctactatg 720  
 angccaaggc tcgaagagag aagaaaatcn aaagttaaaa gtatcacaaa gtcgtgaaga 780  
 aaggaaaggc caagaaagcc ctaaaagagt ttgagcagct gcggaagggt aatccagctg 840  
 ccgactaga agaacgaaga aaaggagaaa gaaggaggag gagaaagaag aagaacaagg 900  
 agaagaagaa agaagaaggg agaaggagaa gaaagaaggg agaaggagaa aaggaagaag 960

gagaaagaaa aggagaagga aaaggaaaag aaggagaaga aagaagaact aagaagaagg 1020  
 agaggaagaa taagaaggaa agaagaaaga aaaaagttaa agaagaagaa agaaggaaga 1080  
 aggaaagaag aggaagaact nagaagaaga aagaggagga aagaagaag aagaataagg 1140  
 aacnagaaag aaggagaaga aagaataaga agaggaagaa gaaaaagaag aaaagaagaa 1200  
 ggaaagaagg agaaaaagga agaaaaaagg aagaagaaag tagaaagcgg aagaagaaa 1260  
 agaaagtata agaaggaaga agaagaaaga aggaaaaa 1298

<210> 549  
 <211> 236  
 <212> PRT  
 <213> Homo Sapiens

<400> 549  
 Ala Ala Glu Met Thr Ala Asn Arg Leu Ala Glu Ser Leu Leu Ala Leu  
 1 5 10 15  
 Ser Gln Glu Glu Leu Ala Asp Leu Pro Lys Asp Tyr Leu Leu Ser Glu  
 20 25 30  
 Ser Glu Asp Glu Gly Asp Asn Asp Gly Glu Arg Lys His Lys Leu Leu  
 35 40 45  
 Glu Ala Ile Ser Ser Leu Asp Gly Lys Asn Arg Arg Lys Leu Ala Arg  
 50 55 60  
 Ser Glu Ala Ser Leu Lys Val Ser Glu Phe Asn Val Ser Ser Glu Gly  
 65 70 75 80  
 Ser Gly Glu Lys Leu Val Leu Ala Asp Leu Leu Glu Pro Val Lys Thr  
 85 90 95  
 Ser Ser Ser Leu Ala Thr Val Lys Lys Gln Leu Ser Arg Val Ser Lys  
 100 105 110  
 Thr Val Glu Leu Pro Leu Asn Lys Glu Glu Ile Glu Arg Ile His Arg  
 115 120 125  
 Glu Ile Ala Phe Asn Lys Thr His Lys Ser Ser Pro Asn Gly Thr Leu  
 130 135 140  
 Ser Ser Val Leu Lys Asn Arg Gln Ala Glu Gln Leu Val Phe Pro Leu  
 145 150 155 160  
 Glu Lys Glu Glu Pro Ala Ile Ala Pro Ile Glu His Val Leu Ser Gly  
 165 170 175  
 Trp Lys Ala Arg Thr Pro Leu Glu Gln Glu Ile Phe Asn Leu Leu His  
 180 185 190  
 Lys Asn Lys Gln Pro Val Thr Asp Pro Leu Leu Thr Pro Val Glu Lys  
 195 200 205  
 Ala Ser Leu Arg Ala Met Ser Leu Glu Glu Ala Lys Met Arg Arg Ala  
 210 215 220  
 Glu Leu Gln Arg Ala Arg Ala Leu Gln Ser Tyr Tyr  
 225 230 235

<210> 550  
 <211> 2236  
 <212> DNA  
 <213> Homo Sapiens

<400> 550  
 cctggcccg tgcggtcgc ggctctttcc agctcctggc agccgggcac ccgaaggaac 60  
 gggctcgtca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggcccgagaa 120  
 ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat 180  
 gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctg 240  
 gtcacatcatg aaccagccg tctgcctctg tttgatgcc ttcggccgct gatccactg 300

```

aagcaccagg tggaatatga tcagctgacc ccccggcgct ccaggaagct gaaggaggtg 360
cgtctggacc gtctgcaccc cgaaggcctc ggctgagtg tgcgtggtgg cctggagttt 420
ggctgtgggc tcttcattct ccacctcatc aaaggcggtc aggcagacag cgtcgggctc 480
caggtagggg acgagatcgt ccggatcaat ggatattcca tctctcctg taccatgag 540
gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagtgag acacatcggc 600
ctgatecccc tgaaaagctc tcctgatgag cccctcactt ggcagtatgt ggatcagttt 660
gtgtcggaat ctggggcggt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag 720
gagaagaagg tcttcattcag cctggtaggc tcccgaggcc ttggctgcag catttccagc 780
ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct 840
gaggtgggat tggagatagg ggaccagatt gtcgaagtca atggcgctga cttctctaac 900
ctggatcaca aggaggtgtt aaatgtgctg aaaaatagcc gcagcctgac catctccatt 960
gtagctgcag ctggccggga gctgttcatg acagaccggg agcggtggc agaggcgagg 1020
cagcgtgagc tgcagcggca ggagcttctc atgcagaagc ggctggcgat ggagtccaac 1080
aagatcctcc aggagcagca ggagatggag cggcaaagga gaaaagaaat tgcccagaag 1140
gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag 1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa 1260
accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg 1320
gaacctgagc tcgagcccg cagtgacctg gatggaggca cggaggagca gggagagcag 1380
gatttccgga aatatgagga aggctttgac ccctactcta tgttcacccc agagcagatc 1440
atgggggaagg atgtccggct cctacgcac aagaaggagg gatccttaga cctggccctg 1500
gaaggcggtg tggactcccc cattgggaag gtggtcgttt ctgctgtgta tgagcgggga 1560
gctgctgagc ggcattggtg cattgtgaaa ggggacgaga tcatggcaat caacggcaag 1620
attgtgacag actacaccct ggctgaggct gacgtgccc tgcagaaggc ctggaatcag 1680
ggcggggact ggatcgacct tgtggttgcc gtctgcccc caaaggagta tgacgatgag 1740
ctgaccttct tgctgaagtc caaaagggga aaccaaattc acgcgttagg aaacagtgag 1800
ctccggcccc acctcgtgaa cacaaagcct cggaccagcc ttgagagagg ccacatgaca 1860
cacaccagat ggcattcctt ggacctgaat ctatcaccca ggaatctcaa actccctttg 1920
gccctgaacc agggccagat aaggaacagc tcggggccact tttttgaagg ccaatgtgga 1980
ggaaagggag cagccagccg tttgggagaa gatctcaagg atccagactc tcattccttt 2040
cctctggccc agtgaatttg gtctctccca gctttggggg actccttctc tgaaccctaa 2100
taagacccca ctggagtctc tctctctcca tccctctct ctgccctctg ctctaattgc 2160
tgccaggatt gtactccaa accttactct gagctcatta ataaaataaa cagatttatt 2220
ttccagctta aaaaaa 2236

```

&lt;210&gt; 551

&lt;211&gt; 652

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 551

```

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu
 1             5             10             15
Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met
      20             25             30
Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu
      35             40             45
Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro
      50             55             60
Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg
      65             70             75             80
Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu
      85             90             95
Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu
      100            105            110
Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu

```

```
<210> 552
<211> 2162
<212> DNA
<213> Homo Sapiens
```

-286-

aa

2162

<210> 553  
 <211> 403  
 <212> PRT  
 <213> Homo Sapiens

<400> 553  
 Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu  
 1 5 10 15  
 Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met  
 20 25 30  
 Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu  
 35 40 45  
 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro  
 50 55 60  
 Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg  
 65 70 75 80  
 Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu  
 85 90 95  
 Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu  
 100 105 110  
 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu  
 115 120 125  
 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser  
 130 135 140  
 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val  
 145 150 155 160  
 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro  
 165 170 175  
 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser  
 180 185 190  
 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys  
 195 200 205  
 Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys  
 210 215 220  
 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His  
 225 230 235 240  
 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp  
 245 250 255  
 Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys  
 260 265 270  
 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile  
 275 280 285  
 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu  
 290 295 300  
 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln  
 305 310 315 320  
 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Gln Glu  
 325 330 335  
 Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu  
 340 345 350  
 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu  
 355 360 365  
 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu

370                      375                      380  
 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg  
 385                      390                      395                      400  
 Lys Pro Lys

<210> 554  
 <211> 1789  
 <212> DNA  
 <213> Homo Sapiens

<400> 554  
 cttctggatg catccgagaa gctaaaactt acttatgagg aaaagtgtga aattgaggaa 60  
 tcccaattga agtttttgag gaacgactta gctgaatc agagaacttg tgaagatcctt 120  
 aaagagcaac taaagcataa agaatttctt ctggctgcta atacttgtaa ccgtgttggt 180  
 ggtctttgtt tgaaatgtgc tcagcatgaa gctgttcttt cccaaaccca tactaatggt 240  
 catatgcaga ccactgaaag actgggttaa gaaagagatg acttgatgct tgcactagtt 300  
 tccgtaagga gcagcttggc agatacgag caaagagaag caagtgccta tgaacagggtg 360  
 aaacaagttt tgcaaatatc tgaggaagcc aattttgaaa aaaccaaggc tttaatccag 420  
 tgtgaccagt tgaggaagga gctggagagg caggcggagc gacttgaaaa agaacttgca 480  
 tctcagcaag agaaaagggc cattgagaaa gacatgatga aaaaggaaat aacgaaagaa 540  
 agggagtaca tgggatcaaa gatgttgatc ttgtctcaga atattgcccc actggaggcc 600  
 caggtggaaa aggttacaaa ggaaaagatt tcagctatta atcaactgga ggaaattcaa 660  
 agccagctgg cttctcggga aatggatgtc acaaagggtg gtggagaaat gcgctatcag 720  
 ctgaataaaa ccaacatgga gaaggatgag gcagaaaagg agcacagaga gttcagagca 780  
 aaaactaaca gggatcttga aattaaagat caggaaatag agaaattgag aatagaactg 840  
 gatgaaagca aacaacactt ggaacaggag cagcagaagg cagccctggc cagagaggag 900  
 tgccctgagac taacagaact gctgggagaa tctgagcacc aactgcacct caccagacag 960  
 gaaaaagata gcattcagca gagctttagc aaggaagcaa aggcccaagc ctttcaggcc 1020  
 cagcaagag agcaggagct gacacagaag atacagcaaa tgggaagcca gcatgacaaa 1080  
 actgaaaatg aacagtattt gttgctgacc tcccagaata catttttgac aaagttaaag 1140  
 gaagaatgct gtacattagc caagaaactg gaacaaatct ctcaaaaaac cagatctgaa 1200  
 atagctcaac tcagtcaaga aaaaaggat acatatgata aattgggaaa gttacagaga 1260  
 agaaaatga aattggagga acagtgtgtc cagcatggga gactacatga gacgatgaag 1320  
 caaaggctaa ggcagctgga taagcacagc caggccacag cccagcagct ggtgcagctc 1380  
 ctcagcaagc agaaccagct tctcctggag aggcagagcc tgtcggaaga ggtggaccgg 1440  
 ctgaggaccc agttaccag catgccacaa tctgattgct gacctggatg gaacagagt 1500  
 aaataaatga attacaaaga gatatttaca ttcatctggt ttagacttaa tatgccacaa 1560  
 cgcaccacga ccttcccagg gtgacaccgc ctcagcctgc agtggggctg gtcctcatca 1620  
 acgcgggcgc tgtccccgca cgcagtcggg ctggagctgg agtctgactc tagctgagca 1680  
 gactcctggt gtatgttttc agaaatggct tgaagttatg tgtttaaatc tgctcattcg 1740  
 tatgctaggt tatacatatg attttcaata aatgaacttt ttaaagaaa 1789

<210> 555  
 <211> 493  
 <212> PRT  
 <213> Homo Sapiens

<400> 555  
 Leu Leu Asp Ala Ser Glu Lys Leu Lys Leu Thr Tyr Glu Glu Lys Cys  
 1                      5                      10                      15  
 Glu Ile Glu Glu Ser Gln Leu Lys Phe Leu Arg Asn Asp Leu Ala Glu  
 20                      25                      30  
 Tyr Gln Arg Thr Cys Glu Asp Leu Lys Glu Gln Leu Lys His Lys Glu  
 35                      40                      45



Phe Leu Leu Ala Ala Asn Thr Cys Asn Arg Val Gly Gly Leu Cys Leu  
 50 55 60  
 Lys Cys Ala Gln His Glu Ala Val Leu Ser Gln Thr His Thr Asn Val  
 65 70 75 80  
 His Met Gln Thr Ile Glu Arg Leu Val Lys Glu Arg Asp Asp Leu Met  
 85 90 95  
 Ser Ala Leu Val Ser Val Arg Ser Ser Leu Ala Asp Thr Gln Gln Arg  
 100 105 110  
 Glu Ala Ser Ala Tyr Glu Gln Val Lys Gln Val Leu Gln Ile Ser Glu  
 115 120 125  
 Glu Ala Asn Phe Glu Lys Thr Lys Ala Leu Ile Gln Cys Asp Gln Leu  
 130 135 140  
 Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg Leu Glu Lys Glu Leu Ala  
 145 150 155 160  
 Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys Asp Met Met Lys Lys Glu  
 165 170 175  
 Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser Lys Met Leu Ile Leu Ser  
 180 185 190  
 Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu Lys Val Thr Lys Glu  
 195 200 205  
 Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Ile Gln Ser Gln Leu Ala  
 210 215 220  
 Ser Arg Glu Met Asp Val Thr Lys Val Cys Gly Glu Met Arg Tyr Gln  
 225 230 235 240  
 Leu Asn Lys Thr Asn Met Glu Lys Asp Glu Ala Glu Lys Glu His Arg  
 245 250 255  
 Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu Glu Ile Lys Asp Gln Glu  
 260 265 270  
 Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu Ser Lys Gln His Leu Glu  
 275 280 285  
 Gln Glu Gln Gln Lys Ala Ala Leu Ala Arg Glu Glu Cys Leu Arg Leu  
 290 295 300  
 Thr Glu Leu Leu Gly Glu Ser Glu His Gln Leu His Leu Thr Arg Gln  
 305 310 315 320  
 Glu Lys Asp Ser Ile Gln Gln Ser Phe Ser Lys Glu Ala Lys Ala Gln  
 325 330 335  
 Ala Leu Gln Ala Gln Gln Arg Glu Gln Glu Leu Thr Gln Lys Ile Gln  
 340 345 350  
 Gln Met Glu Ala Gln His Asp Lys Thr Glu Asn Glu Gln Tyr Leu Leu  
 355 360 365  
 Leu Thr Ser Gln Asn Thr Phe Leu Thr Lys Leu Lys Glu Glu Cys Cys  
 370 375 380  
 Thr Leu Ala Lys Lys Leu Glu Gln Ile Ser Gln Lys Thr Arg Ser Glu  
 385 390 395 400  
 Ile Ala Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu Gly  
 405 410 415  
 Lys Leu Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln His  
 420 425 430  
 Gly Arg Val His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp Lys  
 435 440 445  
 His Ser Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys Gln  
 450 455 460  
 Asn Gln Leu Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp Arg  
 465 470 475 480  
 Leu Arg Thr Gln Leu Pro Ser Met Pro Gln Ser Asp Cys

485

490

<210> 556  
 <211> 1306  
 <212> DNA  
 <213> Homo Sapiens

<400> 556  
 aaaaatagcc gcagcctgac catctccatt gtagctgcag ctggccggga gctgttcattg 60  
 acagaccggg agcggctggc agaggcgagg cagcgtgagc tgcagcggca ggagcttctc 120  
 atgcagaagc ggctggcgat ggagtccaac aagatcctcc aggagcagca ggagatggag 180  
 cggcaaagga gaaaagaaat tgcccagaag gcagcagagg aaaatgagag ataccggaag 240  
 gagatggaac agattgtaga ggaggaagag aagtttaaga agcaatggga agaagactgg 300  
 ggctcaaagg aacagctact cttgcctaaa accatcactg ctgaggtaca cccagtaccc 360  
 cttcgcaagc caaagtatga tcagggagtg gaacctgagc tcgagcccg c agatgacctg 420  
 gatggaggca cggaggagca gggagagcag gatttccgga aatatgagga aggctttgac 480  
 ccctactcta tgttcacccc agagcagatc atggggaagg atgtccggct cctacgcac 540  
 aagaaggagg gatccttaga cctggccctg gaaggcggtg tggactcccc cattgggaag 600  
 gtggtcgttt ctgctgtgta tgagcgggga gctgctgagc ggcattggtg cattgtgaaa 660  
 ggggacgaga tcatggcaat caacggcaag attgtgacag actacaccct ggctgaggct 720  
 gacgctgccc tgcagaaggc ctggaatcag ggccgggact ggatcgacct tgtggttgcc 780  
 gtctgcccc caaaggagta tgacgatgag ctgaccttct tgctgaagtc caaaagggga 840  
 aaccaaattc acgcgttagg aaacagttag ctccggcccc acctcgtgaa cacaaagcct 900  
 cggaccagcc ttgagagagg ccacatgaca cacaccagat ggcatccttg ggacctgaat 960  
 ctatcaccca ggaatctcaa actccctttg gccctgaacc agggccagat aaggaacagc 1020  
 tcggggccact tttttgaagg ccaatgtgga ggaaagggag cagccagccg tttgggagaa 1080  
 gatctcaagg atccagactc tcattccttt cctctggccc agtgaatttg gtctctccca 1140  
 gctttggggg actccttctc tgaaccctaa taagacccca ctggagtctc tctctctcca 1200  
 tcctctctct ctgcccctg ctctaattgc tgccaggatt gtcactccaa accttactct 1260  
 gagctcatta ataaaataaa cagatttatt ttccagctta aaaaaa 1306

<210> 557  
 <211> 328  
 <212> PRT  
 <213> Homo Sapiens

<400> 557  
 Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu Met Glu Arg Gln  
 1 5 10 15  
 Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu Asn Glu Arg Tyr  
 20 25 30  
 Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu Lys Phe Lys Lys  
 35 40 45  
 Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu Leu Leu Pro Lys  
 50 55 60  
 Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg Lys Pro Lys Tyr  
 65 70 75 80  
 Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp Asp Leu Asp Gly  
 85 90 95  
 Gly Thr Glu Glu Gln Gly Glu Gln Asp Phe Arg Lys Tyr Glu Glu Gly  
 100 105 110  
 Phe Asp Pro Tyr Ser Met Phe Thr Pro Glu Gln Ile Met Gly Lys Asp  
 115 120 125  
 Val Arg Leu Leu Arg Ile Lys Lys Glu Gly Ser Leu Asp Leu Ala Leu  
 130 135 140

Glu Gly Gly Val Asp Ser Pro Ile Gly Lys Val Val Val Ser Ala Val  
 145 150 155 160  
 Tyr Glu Arg Gly Ala Ala Glu Arg His Gly Gly Ile Val Lys Gly Asp  
 165 170 175  
 Glu Ile Met Ala Ile Asn Gly Lys Ile Val Thr Asp Tyr Thr Leu Ala  
 180 185 190  
 Glu Ala Asp Ala Ala Leu Gln Lys Ala Trp Asn Gln Gly Gly Asp Trp  
 195 200 205  
 Ile Asp Leu Val Val Ala Val Cys Pro Pro Lys Glu Tyr Asp Asp Glu  
 210 215 220  
 Leu Thr Phe Leu Leu Lys Ser Lys Arg Gly Asn Gln Ile His Ala Leu  
 225 230 235 240  
 Gly Asn Ser Glu Leu Arg Pro His Leu Val Asn Thr Lys Pro Arg Thr  
 245 250 255  
 Ser Leu Glu Arg Gly His Met Thr His Thr Arg Trp His Pro Trp Asp  
 260 265 270  
 Leu Asn Leu Ser Pro Arg Asn Leu Lys Leu Pro Leu Ala Leu Asn Gln  
 275 280 285  
 Gly Gln Ile Arg Asn Ser Ser Gly His Phe Phe Glu Gly Gln Cys Gly  
 290 295 300  
 Gly Lys Gly Ala Ala Ser Arg Leu Gly Glu Asp Leu Lys Asp Pro Asp  
 305 310 315 320  
 Ser His Ser Phe Pro Leu Ala Gln  
 325

<210> 558  
 <211> 2289  
 <212> DNA  
 <213> Homo Sapiens

<400> 558  
 cctggcccggtg tgcgggtcgc ggctctttcc agctcctggc agccggggcac ccgaaggaac 60  
 gggctcgtgca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggccccgagaa 120  
 ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat 180  
 gtgctgcgaa tgtaccacca gacctggac gtggccgtgc tcgtgggaga cctgaagctg 240  
 gtcacatcaatg aaccacagccg tctgcctctg tttgatgcca ttcggccgct gatccactg 300  
 aagcaccagg tggaatatga tcagctgacc ccccgccgct ccaggaaagct gaaggagggtg 360  
 cgtctggacc gtctgcaccc cgaaggcctc ggcctgagtg tgcgtggtgg cctggagttt 420  
 ggctgtgggc tcttcatctc ccacctcatc aaaggcggtc aggcagacag cgtcgggctc 480  
 caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg taccatgag 540  
 gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagttag acacatcggc 600  
 ctgatecccc tgaaaagctc tctgatgag cccctcactt ggagtatgt ggatcagttt 660  
 gtgtcggaaat ctggggcggt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag 720  
 gagaagaagg tcttcatcag cctggtaggc tcccgaggcc ttggctgcag catttccagc 780  
 ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct 840  
 gaggtgggat tggagatagg ggaccagatt gtcgaagtca atggcgtcga cttctctaac 900  
 ctggatcaca aggaggctgt aatgtgctg aaaaatagcc gcagcctgac catctccatt 960  
 gtagctgcag ctggccggga gctgttcatg acagaccggg agcggctggc agaggcgagg 1020  
 cagcgtgagc tgcagcgga ggagcttctc atgcagaagc ggctggcgat ggagtccaac 1080  
 aagatcctcc aggagcagca ggagatggag cggcaaagga gaaaagaaat tgcccagaag 1140  
 gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag 1200  
 aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa 1260  
 accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg 1320  
 gaacctgagc tcgagcccgc agatgacctg gatggaggca cggaggagca gggagagcag 1380  
 ccacaggaga tggtgaagag gatggtggtt tatcaagaca gcattcaaga caagatttcc 1440

```

ggaaatatga ggaaggcttt gaccctact ctatgttcac cccagagcag atcatgggga 1500
aggatgtccg gctcctacgc atcaagaagg agggatcctt agacctggcc ctggaaggcg 1560
gtgtggactc cccattggg aaggtggtcg tttctgctgt gtatgagcgg ggagctgctg 1620
agcggcatgg tggcattgtg aaaggggacg agatcatggc aatcaacggc aagattgtga 1680
cagactacac cctggctgag gctgacgctg ccctgcagaa ggcctggaat cagggcgggg 1740
actggatcga ccttgtgggt gccgtctgcc ccccaaagga gtatgacgat gagctgacct 1800
tcttgctgaa gtccaaaagg ggaaaccaa ttcacgcgtt aggaaacagt gagctccggc 1860
cccacctcgt gaacacaaag cctcggaaca gccttgagag agggccacatg acacacacca 1920
gatggcatcc ttgggacctg aatctatcac ccaggaatct caaactccct ttggccctga 1980
accaggggcca gataaggaac agctcgggcc acttttttga aggccaatgt ggaggaaagg 2040
gaagcagccag ccgtttggga gaagatctca aggatccaga ctctcattcc tttcctctgg 2100
cccagtgaat ttggtctctc ccagctttgg gggactcctt ccttgaacct taataagacc 2160
ccactggagt ctctctctct ccacccctct cctctgccct ctgctcta at tgctgccagg 2220
attgtcactc caaaccttac tctgagctca ttaataaaat aaacagattt attttcagc 2280
ttaaaaaaa

```

&lt;210&gt; 559

&lt;211&gt; 481

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 559

```

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu
 1             5             10             15
Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met
 20             25             30
Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu
 35             40             45
Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro
 50             55             60
Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg
 65             70             75             80
Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu
 85             90             95
Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu
100            105            110
Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu
115            120            125
Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser
130            135            140
Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val
145            150            155            160
Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro
165            170            175
Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser
180            185            190
Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys
195            200            205
Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys
210            215            220
Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His
225            230            235            240
Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp
245            250            255
Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys

```

	260		265		270										
Glu	Ala	Val	Asn	Val	Leu	Lys	Asn	Ser	Arg	Ser	Leu	Thr	Ile	Ser	Ile
	275		280		285										
Val	Ala	Ala	Ala	Gly	Arg	Glu	Leu	Phe	Met	Thr	Asp	Arg	Glu	Arg	Leu
	290		295		300										
Ala	Glu	Ala	Arg	Gln	Arg	Glu	Leu	Gln	Arg	Gln	Glu	Leu	Leu	Met	Gln
305			310					315						320	
Lys	Arg	Leu	Ala	Met	Glu	Ser	Asn	Lys	Ile	Leu	Gln	Glu	Gln	Gln	Glu
			325					330						335	
Met	Glu	Arg	Gln	Arg	Arg	Lys	Glu	Ile	Ala	Gln	Lys	Ala	Ala	Glu	Glu
			340					345						350	
Asn	Glu	Arg	Tyr	Arg	Lys	Glu	Met	Glu	Gln	Ile	Val	Glu	Glu	Glu	Glu
			355					360						365	
Lys	Phe	Lys	Lys	Gln	Trp	Glu	Glu	Asp	Trp	Gly	Ser	Lys	Glu	Gln	Leu
	370					375					380				
Leu	Leu	Pro	Lys	Thr	Ile	Thr	Ala	Glu	Val	His	Pro	Val	Pro	Leu	Arg
385					390					395					400
Lys	Pro	Lys	Tyr	Asp	Gln	Gly	Val	Glu	Pro	Glu	Leu	Glu	Pro	Ala	Asp
			405					410						415	
Asp	Leu	Asp	Gly	Gly	Thr	Glu	Glu	Gln	Gly	Glu	Gln	Pro	Gln	Glu	Met
			420					425						430	
Leu	Lys	Arg	Met	Val	Val	Tyr	Gln	Asp	Ser	Ile	Gln	Asp	Lys	Ile	Ser
			435					440						445	
Gly	Asn	Met	Arg	Lys	Ala	Leu	Thr	Pro	Thr	Leu	Cys	Ser	Pro	Gln	Ser
	450					455					460				
Arg	Ser	Trp	Gly	Arg	Met	Ser	Gly	Ser	Tyr	Ala	Ser	Arg	Arg	Arg	Asp
465					470					475					480
Pro															

<210> 560  
 <211> 2409  
 <212> DNA  
 <213> Homo Sapiens

<400> 560	
cctggccccg	60
tcgcggtgc	120
ggctctttcc	180
agctcctggc	240
agccgggcac	300
ccgaaggaac	360
gggtcggtgc	420
acgacgcagc	480
tggacctggc	540
ccagccatgg	600
accgaaaagt	660
ggccccgaga	720
ttccggcata	780
aggtggattt	840
tctgattgaa	900
aatgatgcag	960
agaaggacta	1020
tctctatgat	1080
gtgctgcgaa	1140
tgtaccacca	
gaccatggac	
gtggccgtgc	
tcgtgggaga	
cctgaagctg	
gtcatcaatg	
aaccagccg	
tctgcctctg	
tttgatgcca	
ttcggccgct	
gatccactg	
aagcaccagg	
tggaatatga	
tcagctgacc	
ccccggcgct	
ccaggaagct	
gaaggagggtg	
cgctctggacc	
gtctgcaccc	
cgaaggcctc	
ggcctgagtg	
tgcgtggtgg	
cctggagttt	
ggctgtgggc	
tcttcatctc	
ccacctcatc	
aaaggcggtc	
aggcagacag	
cgctgggctc	
caggtagggg	
acgagatcgt	
cgggatcaat	
ggatattcca	
tctcctcctg	
tacctatgag	
gaggtcatca	
acctcattcg	
aaccaagaaa	
actgtgtcca	
tcaaagttag	
acacatcggc	
ctgatccccg	
tgaaaagctc	
tcctgatgag	
cccctcactt	
ggcagtatgt	
ggatcagttt	
gtgtcggaat	
ctggggcggt	
gcgaggcagc	
ctgggctccc	
ctggaaaatc	
ggaaaacaag	
gagaagaagg	
tcttcatcag	
cctggtaggc	
tcccgaggcc	
ttggctgcag	
catttccagc	
ggccccatcc	
agaagcctgg	
catctttatc	
agccatgtga	
aacctggctc	
cctgtctgct	
gaggtgggat	
tggagatagg	
ggaccagatt	
gtcgaagtca	
atggcgctga	
cttctctaac	
ctggatcaca	
aggaggctgt	
aaatgtgctg	
aaaaatagcc	
gcagcctgac	
catctccatt	
gtagctgcag	
ctggccggga	
gctgttcatt	
acagaccggg	
agcggctggc	
agaggcgagg	
cagcgtgagc	
tgcagcgcca	
ggagcttctc	
atgcagaagc	
ggctggcgat	
ggagtccaac	
aagatcctcc	
aggagcagca	
ggagatggag	
cggcaaaagg	
gaaaagaaat	
tgcccagaag	

```

gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag 1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa 1260
accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg 1320
gaacctgagc tcgagcccgc agatgacctg gatggaggca cggaggagca gggagagcag 1380
acattttgcc caagcccaca gcctccacga ggcctggcg tgtccaccat ctccaaacct 1440
gtcatggtcc accaggagcc caatttcac tacaggccag ctgtgaaatc tgaagtcttg 1500
ccacaggaga tgttgaagag gatggtggtt tatcaagaca gcattcaaga caagatttcc 1560
ggaaatatga ggaaggcttt gaccctact ctatgttcac cccagagcag atcatgggga 1620
aggatgtccg gctcctacgc atcaagaagg agggatcctt agacctggcc ctggaaggcg 1680
gtgtggactc ccccatggg aaggtggtcg tttctgctgt gtatgagcgg ggagctgctg 1740
agcggcatgg tggcattgtg aaaggggacg agatcatggc aatcaacggc aagattgtga 1800
cagactacac cctggctgag gctgacgctg cctcgagaa ggcctggaat cagggcgggg 1860
actggatcga ccttgtggtt gccgtctgcc ccccaaagga gtatgacgat gagctgacct 1920
tcttctgtaa gtccaaaagg ggaacccaaa ttcacgcgtt aggaaacagt gagctccggc 1980
cccacctcgt gaacacaaaag cctcggacca gccttgagag aggccacatg acacacacca 2040
gatggcatcc ttgggacctg aatctatcac ccaggaatct caaactccct ttggccctga 2100
accagggcca gataaggaac agctcgggcc acttttttga aggccaatgt ggaggaaagg 2160
gagcagccag cgttttgga gaagatctca aggatccaga ctctcattcc ttctctctgg 2220
cccagtgaat ttggtctctc ccagctttgg gggactcctt ccttgaacct taataagacc 2280
ccactggagt ctctctctct ccacccctct cctctgccct ctgctcta at tgctgccagg 2340
attgtcactc caaaccttac tctgagctca ttaataaaat aaacagattt attttccagc 2400
ttaaaaaaa 2409

```

<210> 561  
 <211> 521  
 <212> PRT  
 <213> Homo Sapiens

<400> 561

Met	Asp	Arg	Lys	Val	Ala	Arg	Glu	Phe	Arg	His	Lys	Val	Asp	Phe	Leu
1				5					10					15	
Ile	Glu	Asn	Asp	Ala	Glu	Lys	Asp	Tyr	Leu	Tyr	Asp	Val	Leu	Arg	Met
			20					25					30		
Tyr	His	Gln	Thr	Met	Asp	Val	Ala	Val	Leu	Val	Gly	Asp	Leu	Lys	Leu
		35					40					45			
Val	Ile	Asn	Glu	Pro	Ser	Arg	Leu	Pro	Leu	Phe	Asp	Ala	Ile	Arg	Pro
	50					55					60				
Leu	Ile	Pro	Leu	Lys	His	Gln	Val	Glu	Tyr	Asp	Gln	Leu	Thr	Pro	Arg
65					70				75					80	
Arg	Ser	Arg	Lys	Leu	Lys	Glu	Val	Arg	Leu	Asp	Arg	Leu	His	Pro	Glu
			85					90					95		
Gly	Leu	Gly	Leu	Ser	Val	Arg	Gly	Gly	Leu	Glu	Phe	Gly	Cys	Gly	Leu
			100					105					110		
Phe	Ile	Ser	His	Leu	Ile	Lys	Gly	Gly	Gln	Ala	Asp	Ser	Val	Gly	Leu
		115					120					125			
Gln	Val	Gly	Asp	Glu	Ile	Val	Arg	Ile	Asn	Gly	Tyr	Ser	Ile	Ser	Ser
	130					135					140				
Cys	Thr	His	Glu	Glu	Val	Ile	Asn	Leu	Ile	Arg	Thr	Lys	Lys	Thr	Val
145					150					155					160
Ser	Ile	Lys	Val	Arg	His	Ile	Gly	Leu	Ile	Pro	Val	Lys	Ser	Ser	Pro
			165					170					175		
Asp	Glu	Pro	Leu	Thr	Trp	Gln	Tyr	Val	Asp	Gln	Phe	Val	Ser	Glu	Ser
			180					185					190		
Gly	Gly	Val	Arg	Gly	Ser	Leu	Gly	Ser	Pro	Gly	Asn	Arg	Glu	Asn	Lys
		195					200						205		

Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys  
 210 215 220  
 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His  
 225 230 235 240  
 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp  
 245 250 255  
 Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys  
 260 265 270  
 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile  
 275 280 285  
 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu  
 290 295 300  
 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln  
 305 310 315 320  
 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu  
 325 330 335  
 Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu  
 340 345 350  
 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu  
 355 360 365  
 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu  
 370 375 380  
 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg  
 385 390 395 400  
 Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp  
 405 410 415  
 Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Thr Phe Cys Pro  
 420 425 430  
 Ser Pro Gln Pro Pro Arg Gly Pro Gly Val Ser Thr Ile Ser Lys Pro  
 435 440 445  
 Val Met Val His Gln Glu Pro Asn Phe Ile Tyr Arg Pro Ala Val Lys  
 450 455 460  
 Ser Glu Val Leu Pro Gln Glu Met Leu Lys Arg Met Val Val Tyr Gln  
 465 470 475 480  
 Asp Ser Ile Gln Asp Lys Ile Ser Gly Asn Met Arg Lys Ala Leu Thr  
 485 490 495  
 Pro Thr Leu Cys Ser Pro Gln Ser Arg Ser Trp Gly Arg Met Ser Gly  
 500 505 510  
 Ser Tyr Ala Ser Arg Arg Arg Asp Pro  
 515 520

&lt;210&gt; 562

&lt;211&gt; 1445

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 562

ctccggcagg	gagtcctagc	gcagactttg	cggttcatgg	agagtctctg	ggagacaggc	60
acctgaggac	gctgcagata	agttacgacg	cactgaaaga	tgaaaattct	aagctgagaa	120
gaaagctgaa	tgagggttcag	agcttctctg	aagctcaaac	agaaatgggtg	aggacgcttg	180
agcggaaagt	agaagcaaaa	atgatcaagg	aggaaagcga	ctaccacgac	ctggagtcgg	240
tggttcagca	ggtggagcag	aacctggagc	tgatgaccaa	acgggctgta	aaggcagaaa	300
accacgtcgt	gaaactaaaa	caggaaatca	gtttgctcca	ggcgcagggtc	tccaacttcc	360
agcgagagaa	tgaagccctg	cgggtgcggcc	agggtgccag	cctgaccgtg	gtgaagcaga	420
acgccgacgt	ggccctgcag	aacctccggg	tggtcatgaa	cagtgcacag	gcttccatca	480

```

agcaactggt ttccggagct gagacactga atcttgttgc cgaaatcctt aaatctatag 540
acagaatttc tgaagttaaa gacgaggagg aagactcttg aggaccctg ggtgttctca 600
gcatgaagct ccgtgtatac cctgaggtca ccaccgctcg atctaaatgt gcagttgtgt 660
ccttaaatat gcagtcttca ccagagtaa agtgttgatc gcaagagtcc agtgtcgtgc 720
cctcagccag ttcttggcca ccacaatggg agcagccctg gccgagttgt ctctgtggtt 780
tctatgcagc ccttcttggc gaaattcctg cgatcttata gattctaatag agctcttgga 840
agacattgtc ataaaagcca gtgattttta gaaaaagagt ggttctggaa tcaatgtttt 900
ccagtccecat cccagaacat cagttgttaag ataagtacaa ttggttgtcc ttgatttcat 960
aagtagaaca aacactaaat gtgcctctga gatggccacc ccgggcaggg acctgtgcct 1020
tccgccgatg ctcagggtc cctctggctc ccgggtcact cttgtggccc cagtgggtgg 1080
tccctgcagt catggcctga gtgcgcaggg gccaccgctg ggctgctgct gtcctcctcc 1140
ggggaccacg ggggaacaag gtcacacctt ccgtgctgtg aagctgtcca gatgtgcctc 1200
tttggctggg ggttttgggtg gacgtttcaa gtggcatttt gtacaatgca ggtagaatt 1260
caggaatttc aagtatgtgc ccgggtntgt caggctccag ttgccttnt gacggccccc 1320
ctcagagggg cggcgatgag cactaaatgc ttttttgant attttcctat agattttttt 1380
taaaactttt ttttctcct gttccaattg atagctttct tatttaataa attctgtagt 1440
tcacc

```

<210> 563  
 <211> 192  
 <212> PRT  
 <213> Homo Sapiens

```

<400> 563
Pro Ala Gly Ser Pro Ser Ala Asp Phe Ala Val His Gly Glu Ser Leu
 1           5           10           15
Gly Asp Arg His Leu Arg Thr Leu Gln Ile Ser Tyr Asp Ala Leu Lys
 20           25           30
Asp Glu Asn Ser Lys Leu Arg Arg Lys Leu Asn Glu Val Gln Ser Phe
 35           40           45
Ser Glu Ala Gln Thr Glu Met Val Arg Thr Leu Glu Arg Lys Leu Glu
 50           55           60
Ala Lys Met Ile Lys Glu Glu Ser Asp Tyr His Asp Leu Glu Ser Val
 65           70           75           80
Val Gln Gln Val Glu Gln Asn Leu Glu Leu Met Thr Lys Arg Ala Val
 85           90           95
Lys Ala Glu Asn His Val Val Lys Leu Lys Gln Glu Ile Ser Leu Leu
100          105          110
Gln Ala Gln Val Ser Asn Phe Gln Arg Glu Asn Glu Ala Leu Arg Cys
115          120          125
Gly Gln Gly Ala Ser Leu Thr Val Val Lys Gln Asn Ala Asp Val Ala
130          135          140
Leu Gln Asn Leu Arg Val Val Met Asn Ser Ala Gln Ala Ser Ile Lys
145          150          155          160
Gln Leu Val Ser Gly Ala Glu Thr Leu Asn Leu Val Ala Glu Ile Leu
165          170          175
Lys Ser Ile Asp Arg Ile Ser Glu Val Lys Asp Glu Glu Glu Asp Ser
180          185          190

```

<210> 564  
 <211> 1226  
 <212> DNA  
 <213> Homo Sapiens

<400> 564



```

ctgggcccgcg agggcgcgag cttgggagcg gagcccagggc cgtgccgcgc ggcgccatga      60
agggcaagga ggagaaggag ggcggcgcac ggctggcgcg tggcggggga agccccgaga      120
agagcccagag cgcgcaggag ctcaaggagc agggcaatcg tctgttcgtg ggccgaaagt      180
acccgaggagc ggcggcctgc tacggccgcg cgatcacccg gaaccgcgtg gtggccgtgt      240
attacaccaa ccgggccttg tgctacctga agatgcagca gcacgagcag gccctggccg      300
actgccggcg cgccctggag ctggacgggc agtctgtgaa ggcgcacttc ttcctggggc      360
agtgccagct ggagatggag agctatgatg aggccatcgc caatctgcag cgagcttaca      420
gcctggccaa ggagcagcgg ctgaacttcg gggacgacat ccccagcgct cttcgaatcg      480
cgaagaagaa gcgctggaac agcattgagg agcggcgcat ccaccaggag agcgagctgc      540
actcctacct ctccaggctc attgccgcgg agcgtgagag ggagctggaa gagtgccagc      600
gaaaccacga gggatgatgag gacgacagcc acgtccgggc ccagcaggcc tgcattgagg      660
ccaagcacga caagtacatg gcggacatgg acgagctttt ttctcagggtg gatgagaaga      720
ggaagaagcg agacatcccc gactacctgt gtggcaagat cagctttgag ctgatgcggg      780
agccgtgcat cacgcccagt ggcattcacct acgaccgcaa ggacatcgag gaggacctgc      840
agcgtgtggg tcatTTTTgac ccggtgaccg ggagccccct gaccaggaa cagttcatcc      900
ccaacttggc tatgaaggag gttattgacg cattcatctc tgagaatggc tgggtggagg      960
actactgagg ttccctgccc tacctggcgt cctggtccag gggagccctg ggcagaagcc      1020
cccgccccc aaacatagtt tatgtttttg gccaccccg cgcgttcccc caagttctgc      1080
tggtggactc tggactgttt cccctctcag catcgctttt gctggggcgt gattgtcccc      1140
tttgtgggct ggaaaagcag gtgagggtgg gctgggctga ggccattgcc gccactatct      1200
gtgtaataaa atccgtgagc acgaaa      1226

```

&lt;210&gt; 565

&lt;211&gt; 303

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 565

```

Met Lys Gly Lys Glu Glu Lys Glu Gly Gly Ala Arg Leu Gly Ala Gly
 1              5              10              15
Gly Gly Ser Pro Glu Lys Ser Pro Ser Ala Gln Glu Leu Lys Glu Gln
 20              25              30
Gly Asn Arg Leu Phe Val Gly Arg Lys Tyr Pro Glu Ala Ala Cys
 35              40              45
Tyr Gly Arg Ala Ile Thr Arg Asn Pro Leu Val Ala Val Tyr Tyr Thr
 50              55              60
Asn Arg Ala Leu Cys Tyr Leu Lys Met Gln Gln His Glu Gln Ala Leu
 65              70              75              80
Ala Asp Cys Arg Arg Ala Leu Glu Leu Asp Gly Gln Ser Val Lys Ala
 85              90              95
His Phe Phe Leu Gly Gln Cys Gln Leu Glu Met Glu Ser Tyr Asp Glu
100              105              110
Ala Ile Ala Asn Leu Gln Arg Ala Tyr Ser Leu Ala Lys Glu Gln Arg
115              120              125
Leu Asn Phe Gly Asp Asp Ile Pro Ser Ala Leu Arg Ile Ala Lys Lys
130              135              140
Lys Arg Trp Asn Ser Ile Glu Glu Arg Arg Ile His Gln Glu Ser Glu
145              150              155              160
Leu His Ser Tyr Leu Ser Arg Leu Ile Ala Ala Glu Arg Glu Arg Glu
165              170              175
Leu Glu Glu Cys Gln Arg Asn His Glu Gly Asp Glu Asp Asp Ser His
180              185              190
Val Arg Ala Gln Gln Ala Cys Ile Glu Ala Lys His Asp Lys Tyr Met
195              200              205
Ala Asp Met Asp Glu Leu Phe Ser Gln Val Asp Glu Lys Arg Lys Lys

```

```

      210              215              220
Arg Asp Ile Pro Asp Tyr Leu Cys Gly Lys Ile Ser Phe Glu Leu Met
225              230              235              240
Arg Glu Pro Cys Ile Thr Pro Ser Gly Ile Thr Tyr Asp Arg Lys Asp
      245              250              255
Ile Glu Glu His Leu Gln Arg Val Gly His Phe Asp Pro Val Thr Gly
      260              265              270
Ser Pro Leu Thr Gln Glu Gln Phe Ile Pro Asn Leu Ala Met Lys Glu
      275              280              285
Val Ile Asp Ala Phe Ile Ser Glu Asn Gly Trp Val Glu Asp Tyr
      290              295              300

```

<210> 566  
 <211> 1857  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 566
gtgaggggct ccttttgggca ggggtagtgt ttggtgtccc tgtcttgcgt gatattgaca      60
aactgaagct ttctgcacc actggactta aggaanagtg tactcgtagg cggacagctt      120
tagtgcccg cgggccgctc tcatcccccg taaggagcag agtcctttgt actgaccaag      180
atgagcaaca tctacatcca ggagcctccc acgaatggga aggtttttatt gaaaactaca      240
gctggagata ttgacataga gttgtggtcc aaagaagctc ctaaagcttg cagaaatttt      300
atcccaactt tgtttggaag cttattatga caataccatt ttcatagag ttgtgcctgg      360
tttcatagtc caaggcggag atcctactgg cacagggagt ggtggagagt ctatctatgg      420
agcgccattc aaagatgaat ttcattcacg gttgcgtttt aatcggagag gactggttgc      480
catggcaaat gctggttctc atgataatgg caccactttt ttcttcacac tgggtcgcgc      540
agatgaactt aacaataaagc ataccatctt tggaaagggt acaggggata cagtatataa      600
catgttgcca ctgtcagaag tagacattga tgatgacgaa agaccacata atccacacaa      660
aataaaaagc tgtgaggttt tgtttaatcc ttttgatgac atcattccaa gggaaattaa      720
aaggctgaaa aaagagaaac cagaggagga agtaaaagaaa ttgaaaccca aaggcacaaa      780
aaattttagt ttactttcat ttggagagga agctgaggaa gaagaagagg aagtaaatcg      840
agttagtcag agcatgaagg gcaaaaagcaa aagtagtcat gacttgctta aggatgatcc      900
acatctcagt tctgttccag ttgtagaaag tgaaaaaggt gatgcaccag atttagttga      960
tgatggagaa gatgaaagtg cagagcatga tgaatatatt gatggtgatg aaaagaacct      1020
gatgagagaa agaattgcc aaaaattaaa aaaggacaca agtgcgaatg ttaaatcagc      1080
tggagaagga gaagtggaga agaaatcagt cagccgcagt gaagagctca gaaaagaagc      1140
aagacaatta aaacgggaac tcttagcagc aaacaaaaaa aaagtagaaa atgcagcaaa      1200
acaagcagaa aaaagaagtg aagaggaaga agccctcca gatggtgctg ttgccgaata      1260
cagaagagaa aagcaaaagt atgaagcttt gaggaagcaa cagtcaaaga agggaaacttc      1320
ccgggaagat cagacccttg cactgctgaa ccagtttaaa tctaaactca ctcaagcaat      1380
tgctgaaaca cctgaaaatg acattcctga aacagaagta gaagatgatg aaggatggat      1440
gtcacatgta cttcagtttg aggataaaag cagaaaagtg aaagatgcaa gcatgcaaga      1500
ctcagataca tttgaaatct atgatcctcg gaatccagtg aataaaagaa ggagggaaga      1560
aagcaaaaag ctgatgagag agaaaaaaga aagaagataa aatgagaata atgataacca      1620
gaacttgctg gaaatgtgcc tacaatggcc ttgtaacagc cattgttccc aacagcatca      1680
cttaggggtg tgaaaagaag tatttttgaa cctgttgtct ggttttgaaa aacaattatc      1740
ttgttttgca aattgtggaa tgatgtaagc aaatgctttt ggttactggt acatgtgttt      1800
tttcctagct gaccttttat attgctaaat ctgaaataaa ataactttcc ttccaaa      1857

```

<210> 567  
 <211> 372  
 <212> PRT  
 <213> Homo Sapiens

<400> 567  
 Met Ala Asn Ala Gly Ser His Asp Asn Gly Thr His Phe Phe Phe Thr  
 1 5 10 15  
 Leu Gly Arg Ala Asp Glu Leu Asn Asn Lys His Thr Ile Phe Gly Lys  
 20 25 30  
 Val Thr Gly Asp Thr Val Tyr Asn Met Leu Arg Leu Ser Glu Val Asp  
 35 40 45  
 Ile Asp Asp Asp Glu Arg Pro His Asn Pro His Lys Ile Lys Ser Cys  
 50 55 60  
 Glu Val Leu Phe Asn Pro Phe Asp Asp Ile Ile Pro Arg Glu Ile Lys  
 65 70 75 80  
 Arg Leu Lys Lys Glu Lys Pro Glu Glu Glu Val Lys Lys Leu Lys Pro  
 85 90 95  
 Lys Gly Thr Lys Asn Phe Ser Leu Leu Ser Phe Gly Glu Glu Ala Glu  
 100 105 110  
 Glu Glu Glu Glu Glu Val Asn Arg Val Ser Gln Ser Met Lys Gly Lys  
 115 120 125  
 Ser Lys Ser Ser His Asp Leu Leu Lys Asp Asp Pro His Leu Ser Ser  
 130 135 140  
 Val Pro Val Val Glu Ser Glu Lys Gly Asp Ala Pro Asp Leu Val Asp  
 145 150 155 160  
 Asp Gly Glu Asp Glu Ser Ala Glu His Asp Glu Tyr Ile Asp Gly Asp  
 165 170 175  
 Glu Lys Asn Leu Met Arg Glu Arg Ile Ala Lys Lys Leu Lys Lys Asp  
 180 185 190  
 Thr Ser Ala Asn Val Lys Ser Ala Gly Glu Gly Glu Val Glu Lys Lys  
 195 200 205  
 Ser Val Ser Arg Ser Glu Glu Leu Arg Lys Glu Ala Arg Gln Leu Lys  
 210 215 220  
 Arg Glu Leu Leu Ala Ala Lys Gln Lys Lys Val Glu Asn Ala Ala Lys  
 225 230 235 240  
 Gln Ala Glu Lys Arg Ser Glu Glu Glu Glu Ala Pro Pro Asp Gly Ala  
 245 250 255  
 Val Ala Glu Tyr Arg Arg Glu Lys Gln Lys Tyr Glu Ala Leu Arg Lys  
 260 265 270  
 Gln Gln Ser Lys Lys Gly Thr Ser Arg Glu Asp Gln Thr Leu Ala Leu  
 275 280 285  
 Leu Asn Gln Phe Lys Ser Lys Leu Thr Gln Ala Ile Ala Glu Thr Pro  
 290 295 300  
 Glu Asn Asp Ile Pro Glu Thr Glu Val Glu Asp Asp Glu Gly Trp Met  
 305 310 315 320  
 Ser His Val Leu Gln Phe Glu Asp Lys Ser Arg Lys Val Lys Asp Ala  
 325 330 335  
 Ser Met Gln Asp Ser Asp Thr Phe Glu Ile Tyr Asp Pro Arg Asn Pro  
 340 345 350  
 Val Asn Lys Arg Arg Arg Glu Glu Ser Lys Lys Leu Met Arg Glu Lys  
 355 360 365  
 Lys Glu Arg Arg  
 370

&lt;210&gt; 568

&lt;211&gt; 1537

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 568

```

gccgcgcgcc gatcggctcgt taccgcgagg cgctgggtggc cttcaggctg gacggcgcg 60
gtcagccctg gttcgccggc ttctgggtct ttgaacagcc gcgatgtcga tcttcacccc 120
caccaaccag atccgcctaa ccaatgtggc cgtggtacgg atgaagcgtg ccgggaagcg 180
cttcgaaatc gcctgctaca aaaacaaggt cgtcggctgg cggaagcgcg tggaaaaaga 240
cctcgatgaa gttctgcaga ccactcagt gtttgtaaag gtttctaaag gtcagggttc 300
caaaaaggaa gatctcatca gtgcgtttgg aacagatgac caaactgaaa tctgtaagca 360
gattttgact aaaggagaag ttcaagtatc agataaagaa agacacacac aactggagca 420
gatgtttagg gacattgcaa ctattgtggc agacaaatgt gtgaatcctg aaacaaagag 480
accatacacc gtgaccccta ttgagagagc catgaaggac atccactatt cggtgaaaac 540
caacaagagt acaaaacagc aggcctttgga agtgataaag cagttaaaag agaaaatgaa 600
gatagaacgt gctcacatga agcttcggtt catccttcca gtcaatgaag gcaagaactg 660
aaagaaaagc tcaagccact gatcaaggtc atagaaagtg aagattatgg ccaacagtta 720
gaaatcgatg gtcgtattga cccgggctgc ttccgagaaa ttgatgagct aataaaaaag 780
gaaactaaa gcaagggttc tttggaagta ctcaatctga aagatgtaga agaaggagat 840
gagaaatttg aatgacaccc atcaatctct tcacctctaa aacactaaag tgtttccgtt 900
tccgacggca ctgtttcatg tctgtggtct gccaaatact tgcttaaaact atttgacatt 960
ttctatcttt gtgttaacag tggacacagc aaggctttcc tacataagta taataatgtg 1020
ggaatgattt ggttttaatt ataaactggg gtctaaatcc taaagcaaaa ttgaaactcc 1080
aagatgcaaa gtccagagtg gcattttgct actctgtctc atgccttgat agctttccaa 1140
aatgaaagtt acttgangca gctcttgagg gtgaaaagtt atttgtagag tagagtaaga 1200
ttattagggg tatgtctata caacaaaagg gggggtcttt cctaaaaaag aaaacatatg 1260
atgcttcatt tctacttaat ggaacttggt ttctgagggt cattatggtg tcgtaatgta 1320
aagcttggtg gatgttcctg attatttgag gaacagatat aggaaaattg tgccggaatt 1380
acctttcatt gaacatgctg ccataaatta gggtattttt ggtaaaaaaa taaaagtcaa 1440
ttatttttaa tttttaaagt ttataatata tattaatata ggtaaaattg tatgtaatca 1500
ataaaaccaa ttttatgttt attaaactta aaaaaaa 1537

```

&lt;210&gt; 569

&lt;211&gt; 210

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 569

```

Ala Ala Arg Arg Ser Val Val Thr Ala Arg Arg Trp Trp Pro Ser Gly
1      5      10      15
Trp Thr Ala Arg Val Ser Pro Gly Ser Pro Ala Ser Gly Ser Leu Asn
20     25     30
Ser Arg Asp Val Asp Leu His Pro His Gln Pro Asp Pro Pro Asn Gln
35     40     45
Cys Gly Arg Gly Thr Asp Glu Ala Cys Arg Glu Ala Leu Arg Asn Arg
50     55     60
Leu Leu Gln Lys Gln Val Val Gly Trp Arg Ser Gly Val Glu Lys Asp
65     70     75     80
Leu Asp Glu Val Leu Gln Thr His Ser Val Phe Val Asn Val Ser Lys
85     90     95
Gly Gln Val Ala Lys Lys Glu Asp Leu Ile Ser Ala Phe Gly Thr Asp
100    105    110
Asp Gln Thr Glu Ile Cys Lys Gln Ile Leu Thr Lys Gly Glu Val Gln
115    120    125
Val Ser Asp Lys Glu Arg His Thr Gln Leu Glu Gln Met Phe Arg Asp
130    135    140
Ile Ala Thr Ile Val Ala Asp Lys Cys Val Asn Pro Glu Thr Lys Arg
145    150    155    160
Pro Tyr Thr Val Ile Leu Ile Glu Arg Ala Met Lys Asp Ile His Tyr

```

165 170 175  
 Ser Val Lys Thr Asn Lys Ser Thr Lys Gln Gln Ala Leu Glu Val Ile  
 180 185 190  
 Lys Gln Leu Lys Glu Lys Met Lys Ile Glu Arg Ala His Met Lys Leu  
 195 200 205  
 Arg Phe  
 210

<210> 570  
 <211> 1211  
 <212> DNA  
 <213> Homo Sapiens

<400> 570  
 accatctttg gaaagggttac aggggtatac agtatataac atgttgcgac tgtcagaagt 60  
 agacattgat gatgacgaaa gaccacataa tccacacaaa ataaaaagct gtgagggttt 120  
 gtttaatcct tttgatgaca tcattccaag ggaaattaaa aggctgaaaa aagagaaaacc 180  
 agaggaggaa gtaaagaaat tgaaccccaa aggcacaaaa aatttttagtt tactttcatt 240  
 tggagaggaa gctgagggaag aagaggagga agtaaatacga gttagtcaga gcatgaaggg 300  
 caaaagcaaa agtagtcatt acttgcttaa ggatgatcca catctcagtt ctgttccagt 360  
 tgtagaaagt gaaaaagggtg atgcagcaga tttagttgat gatggagaag atgaaagtgc 420  
 agagcatgat gaatatattg atggtgatga aaagaacctg atgagagaaa gaattgccaa 480  
 aaaattaaaa aaggacacaa gtgcgaatgt taaatcagct ggagaaggag aagtggagaa 540  
 gaaatcagtc agccgcagtg aagagctcag aaaagaagca agacaattaa aacgggaact 600  
 cttagcagca gaacaaaaaa aagtagaaaa tgcagcaaaa caagcagaaa aaagaagtga 660  
 agaggaagaa gcccctccag atggtgctgt tgccgaatac agaagagaaa agcaaaagta 720  
 tgaagctctg aggaagcaac agtcaaagaa gggaaacttc cggaagatc agacccttgc 780  
 actgctgaac cagttttaa ctaaaactcac tcaagcaatt gctgaaacgc ctgaaaatga 840  
 cattcctgaa acagaagtag aagatgatga aggatggatg tcacatgtac ttcagtttga 900  
 ggataaaagc agaaaagtga aagatgcaag catgcaagac tcagatacat ttgaaatcta 960  
 tgatcctcgg aatccagtga ataaaagaag gaggaagaa agcaaaaagc tgatgagaga 1020  
 gaaaaaagaa agaagataaa atgagaataa tgataaccag aacttgctgg aaatgtgcct 1080  
 acaatggcct tgtaacagcc attgttcca acagcatcac ttaggggtgt gaaaagaagt 1140  
 atttttgaac ctgttgtctg gttttgaaaa acaattatct tgttttgcaa attgtggaat 1200  
 gatgtaagca a 1211

<210> 571  
 <211> 354  
 <212> PRT  
 <213> Homo Sapiens

<400> 571  
 Pro Ser Leu Glu Arg Leu Gln Gly Tyr Thr Val Tyr Asn Met Leu Arg  
 1 5 10 15  
 Leu Ser Glu Val Asp Ile Asp Asp Asp Glu Arg Pro His Asn Pro His  
 20 25 30  
 Lys Ile Lys Ser Cys Glu Val Leu Phe Asn Pro Phe Asp Asp Ile Ile  
 35 40 45  
 Pro Arg Glu Ile Lys Arg Leu Lys Lys Glu Lys Pro Glu Glu Glu Val  
 50 55 60  
 Lys Lys Leu Lys Pro Lys Gly Thr Lys Asn Phe Ser Leu Leu Ser Phe  
 65 70 75 80  
 Gly Glu Glu Ala Glu Glu Glu Glu Glu Glu Val Asn Arg Val Ser Gln  
 85 90 95  
 Ser Met Lys Gly Lys Ser Lys Ser Ser His Asp Leu Leu Lys Asp Asp

100 105 110  
 Pro His Leu Ser Ser Val Pro Val Val Glu Ser Glu Lys Gly Asp Ala  
 115 120 125  
 Ala Asp Leu Val Asp Asp Gly Glu Asp Glu Ser Ala Glu His Asp Glu  
 130 135 140  
 Tyr Ile Asp Gly Asp Glu Lys Asn Leu Met Arg Glu Arg Ile Ala Lys  
 145 150 155 160  
 Lys Leu Lys Lys Asp Thr Ser Ala Asn Val Lys Ser Ala Gly Glu Gly  
 165 170 175  
 Glu Val Glu Lys Lys Ser Val Ser Arg Ser Glu Glu Leu Arg Lys Glu  
 180 185 190  
 Ala Arg Gln Leu Lys Arg Glu Leu Leu Ala Ala Glu Gln Lys Lys Val  
 195 200 205  
 Glu Asn Ala Ala Lys Gln Ala Glu Lys Arg Ser Glu Glu Glu Ala  
 210 215 220  
 Pro Pro Asp Gly Ala Val Ala Glu Tyr Arg Arg Glu Lys Gln Lys Tyr  
 225 230 235 240  
 Glu Ala Leu Arg Lys Gln Gln Ser Lys Lys Gly Thr Ser Arg Glu Asp  
 245 250 255  
 Gln Thr Leu Ala Leu Leu Asn Gln Phe Lys Ser Lys Leu Thr Gln Ala  
 260 265 270  
 Ile Ala Glu Thr Pro Glu Asn Asp Ile Pro Glu Thr Glu Val Glu Asp  
 275 280 285  
 Asp Glu Gly Trp Met Ser His Val Leu Gln Phe Glu Asp Lys Ser Arg  
 290 295 300  
 Lys Val Lys Asp Ala Ser Met Gln Asp Ser Asp Thr Phe Glu Ile Tyr  
 305 310 315 320  
 Asp Pro Arg Asn Pro Val Asn Lys Arg Arg Arg Glu Glu Ser Lys Lys  
 325 330 335  
 Leu Met Arg Glu Lys Lys Glu Arg Arg Ile Leu Pro Val Asn Glu Gly  
 340 345 350  
 Lys Asn

<210> 572  
 <211> 604  
 <212> DNA  
 <213> Homo Sapiens

<400> 572  
 ccttcggcaa aaaatttttg tcccaacttt ttgttccatt ccaaaagggc ttaccttcat 60  
 tcccttttagc aacaggggcc ccaagaagct cccgttcatt cacccttacc ttggccccc 120  
 ggttggaacc ccaaaggctc ccttacccca aagtgggtgg ttgaataaat cttctcagtt 180  
 ccctggctcc caaggcccat tgaagaagat tgtacaaggc gtgcctcaag taccctcaggt 240  
 ggaaacagaa gcacctgcct cacttcaagc cgtggctgca cccggagcag agcccgttgc 300  
 cgagcctggc gctgtcggag ctgtcgggtc agcatgcgga ctactggag aacatcgacg 360  
 agagcgcggt ggccgagagc agagaggagc ggtatggcgcg cgcgggcggc gagggcagcg 420  
 acgacgacac cttcacctga gcccgccacc cttcagggac ggagacagga ccgggcgagc 480  
 cctggggcgcg cgcccgctcc tgcaactttct cccctccccc acccggcacc tgggtggcacc 540  
 gggccaggcc caggcggtg ctgcagcctg gctggacaga gccaataaa cggatccacc 600  
 agcc 604

<210> 573  
 <211> 195  
 <212> PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 573

```

Leu Arg Gln Lys Ile Leu Val Pro Thr Phe Cys Ser Ile Pro Lys Gly
 1           5           10           15
Leu Thr Phe Ile Pro Phe Ser Asn Arg Ala Pro Lys Lys Leu Pro Phe
          20           25           30
Ile His Pro Tyr Leu Gly Pro Gln Val Gly Pro Pro Lys Ala Pro Leu
          35           40           45
Pro Gln Ser Gly Trp Leu Asn Lys Ser Ser Gln Phe Pro Gly Ser Gln
          50           55           60
Gly Pro Leu Lys Lys Ile Val Gln Gly Val Pro Gln Val Pro Arg Val
65           70           75           80
Glu Thr Glu Ala Pro Ala Ser Leu Gln Ala Val Ala Ala Pro Gly Ala
          85           90           95
Glu Pro Val Ala Glu Pro Gly Ala Val Gly Ala Val Gly Ala Ala Cys
          100          105          110
Gly Leu Thr Gly Glu His Arg Arg Gly Arg Gly Arg Glu Gln Arg
          115          120          125
Gly Ala Asp Gly Arg Arg Gly Arg Arg Gly Gln Arg Arg Arg His Leu
          130          135          140
His Leu Ser Pro His Arg Phe Arg Asp Gly Asp Arg Thr Gly Arg Ala
145          150          155          160
Leu Gly Arg Arg Pro Leu Leu His Phe Leu Pro Ser Pro Thr Arg His
          165          170          175
Leu Val Ala Pro Gly Gln Ala Gln Ala Gly Ala Ala Ala Trp Leu Asp
          180          185          190
Arg Ala Gln
          195

```

&lt;210&gt; 574

&lt;211&gt; 742

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 574

```

cccaccaggg cccctcgat gcagagacag aggtcgggtgc tgaccgctgc acgtcgactg      60
cctaccagga gcagaggccc caggtggagc aagttggcaa agtcgctcct ctctccccag      120
ggctgccggc aatggggggg cctggccccc gccctgtga ggaccccgcg ggtgctgggg      180
gagcaggtgc agggggctcc gagcccctgg tgactgtcac cgtgcagtgc gccttcacag      240
tgccctgag ggcaggaaga ggagccgacc tgtccagcct gcgggcactg ctgggccaag      300
ccttccttca ccaggcccag cttgggcaat tcagttacct agccccaggt gaggacgggc      360
actgggtccc catccccgag gaggagtcgc tgcagagggc ctggcaggac gcagctgcct      420
gccccagggg gctgcagctg cagtgcaggg gagccggggg tcggccgggtc ctttaccagg      480
tggtggccca gcacagatac tccgcccagg ggccagagga cctgggcttc cgacaggggg      540
acacggtgga cgtcctgtgt gaagtggacc aggcattggt ggagggccac tgtgacggcc      600
gcatcggcac cttcccgaag tgcttcgtgg tccccgccgg ccctcgatg tcaggagccc      660
ccggccgcct gccccgatcc cagcaggag atcagcccta atgatgctgt gtccatgatg      720
ctttaataa aaacaacccc ca

```

&lt;210&gt; 575

&lt;211&gt; 232

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 575

His Gln Gly Pro Leu Asp Ala Glu Thr Glu Val Gly Ala Asp Arg Cys  
 1 5 10 15  
 Thr Ser Thr Ala Tyr Gln Glu Gln Arg Pro Gln Val Glu Gln Val Gly  
 20 25 30  
 Lys Val Ala Pro Leu Ser Pro Gly Leu Pro Ala Met Gly Gly Pro Gly  
 35 40 45  
 Pro Gly Pro Cys Glu Asp Pro Ala Gly Ala Gly Gly Ala Gly Ala Gly  
 50 55 60  
 Gly Ser Glu Pro Leu Val Thr Val Thr Val Gln Cys Ala Phe Thr Val  
 65 70 75 80  
 Ala Leu Arg Ala Gly Arg Gly Ala Asp Leu Ser Ser Leu Arg Ala Leu  
 85 90 95  
 Leu Gly Gln Ala Phe Leu His Gln Ala Gln Leu Gly Gln Phe Ser Tyr  
 100 105 110  
 Leu Ala Pro Gly Glu Asp Gly His Trp Val Pro Ile Pro Glu Glu Glu  
 115 120 125  
 Ser Leu Gln Arg Ala Trp Gln Asp Ala Ala Ala Cys Pro Arg Gly Leu  
 130 135 140  
 Gln Leu Gln Cys Arg Gly Ala Gly Gly Arg Pro Val Leu Tyr Gln Val  
 145 150 155 160  
 Val Ala Gln His Arg Tyr Ser Ala Gln Gly Pro Glu Asp Leu Gly Phe  
 165 170 175  
 Arg Gln Gly Asp Thr Val Asp Val Leu Cys Glu Val Asp Gln Ala Trp  
 180 185 190  
 Leu Glu Gly His Cys Asp Gly Arg Ile Gly Ile Phe Pro Lys Cys Phe  
 195 200 205  
 Val Val Pro Ala Gly Pro Arg Met Ser Gly Ala Pro Gly Arg Leu Pro  
 210 215 220  
 Arg Ser Gln Gln Gly Asp Gln Pro  
 225 230

&lt;210&gt; 576

&lt;211&gt; 1087

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 576

aagatgatgc ctagttaaatt acagaagaac aaacagagac tgcgaaacga tcctetcaat 60  
 caaaataagg gtaaaccaga cttgaataca acattgccaa ttagacaaac agcatcaatt 120  
 ttcaaaacac cggtaaccaa agtcacaaat catcctagta ataaagtga atcagaccca 180  
 caacgaatga atgaacagcc acgtcagctt ttctgggaga agaggctaca aggacttagt 240  
 gcatcagatg taacagaaca aattataaaa accatggaac tacccaaagg tcttcaagga 300  
 gttggtccag gtagcaatga tgagaccctt ttatctgctg ttgccagtgc tttgcacaca 360  
 agctctgctc caatcacagg gcaagtctcc gctgctgtgg aaaagaaccc tgctgtttgg 420  
 cttaacacat ctcaaccct ctgcaaagct tttattgtca cagatgaaga catcaggaaa 480  
 caggaagagc gactacagca agtacgcaag aaattggaag aagcactgat ggcagacatc 540  
 ttgtcgcgag ctgctgatac agaagagatg gatattgaaa tggacagtgg agatgaagcc 600  
 taagaatatg atcaggtaac tttcgaccga ctttcccaa gagaaaattc ctagaaattg 660  
 aacaaaaatg tttccactgg cttttgcctg taagaaaaaa aatgtaccgc agcacataga 720  
 gctttttaat agcactaacc aatgcctttt tagatgtatt tttgatgtat atatctatta 780  
 ttcaaaaaat catgtttatt ttgagtccta ggacttaaaa ttagtctttt gtaatatcaa 840  
 gcaggaccct aagatgaagc tgagcttttg atgccaggtg caatttactg gaaatgtagc 900  
 acttacgtaa aacatttgtt tccccacag ttttaataag aacagatcag gaattctaaa 960  
 taaatttccc agttaaagat tattgtgact tcactgtata taaacatatt tttatacttt 1020



attgaaaggg gacacctgta cattcttcca tcgtcactgt aaagacaaat aaatgattat 1080  
attcaca 1087

<210> 577  
<211> 200  
<212> PRT  
<213> Homo Sapiens

<400> 577  
Lys Met Met Pro Ser Lys Leu Gln Lys Asn Lys Gln Arg Leu Arg Asn  
1 5 10 15  
Asp Pro Leu Asn Gln Asn Lys Gly Lys Pro Asp Leu Asn Thr Thr Leu  
20 25 30  
Pro Ile Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val Thr Lys Val  
35 40 45  
Thr Asn His Pro Ser Asn Lys Val Lys Ser Asp Pro Gln Arg Met Asn  
50 55 60  
Glu Gln Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser  
65 70 75 80  
Ala Ser Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu Leu Pro Lys  
85 90 95  
Gly Leu Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser  
100 105 110  
Ala Val Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln  
115 120 125  
Val Ser Ala Ala Val Glu Lys Asn Pro Ala Val Trp Leu Asn Thr Ser  
130 135 140  
Gln Pro Leu Cys Lys Ala Phe Ile Val Thr Asp Glu Asp Ile Arg Lys  
145 150 155 160  
Gln Glu Glu Arg Val Gln Gln Val Arg Lys Lys Leu Glu Glu Ala Leu  
165 170 175  
Met Ala Asp Ile Leu Ser Arg Ala Ala Asp Thr Glu Glu Met Asp Ile  
180 185 190  
Glu Met Asp Ser Gly Asp Glu Ala  
195 200

<210> 578  
<211> 2569  
<212> DNA  
<213> Homo Sapiens

<400> 578  
aagagtaaaaa gctactcttt cagagagaaa aataggagat tcatgtgaca aagatttgcc 60  
tctgaaatgt tgtgagttcc cacagaagac tataatgcct ggatttaaaa caactgtata 120  
tgtttctcat ataaatgacc ttccagactt ttatgttcaa ctaatagaag atgaagctga 180  
aattagtcac ctttcagaga gattaaacag tggttaaaaca aggcccgaaat attatgtagg 240  
tccacctttg caaagaggag atatgatatg tgctgttttc ccagaagata atttatggta 300  
tcgtgctgtg atcaaggagc aacaacccaa tgaccttctc tctgtgcagt ttatagatta 360  
tggcaatggt tctgtggttc atactaacia aataggtagg cttgaccttg ttaatgcaat 420  
attgcccggg ttgtgcattc attgtcctt gcagggattt gaggttctctg acaataaaaa 480  
ttctaagaaa atgatgcatt acttttccca acggaccagc gaggctgcaa taagatgtga 540  
atgtgttaaa tttcaagaca gatgggaagt tattcttgct gatgaacatg ggatcatagc 600  
agatgatatg attagcaggt atgctctcag tgaaaaatct caagtagaac tttctaccca 660  
agtaattaaa agtgccagtt caaagtctgt taacaaatca gacattgaca cttcagtatt 720  
tcttaactgg tataatccag aaaaaaaaaa gataagagct tatgccactg tgatagatgg 780

```

acctgagtag ttttggtgtc agtttgctga tacggagaaa cttcagtgtt tagaagtaga      840
agtagacact gctggagAAC aggtagcaga caggagaaat tgtatcccat gtccttatat      900
tggagatcct tgtatagtaa gatacagaga agatggacat tattataggg cacttatcac      960
taatatattgt gaagattatc ttgtatctgt caggcttgtg gactttggaa acattgaaga     1020
ctgtgtggac ccaaaagcac tctgggccat tccttctgaa cttctgtcgg ttcccatgca     1080
agcctttcca tgttgctctc cagggtttaa catttcagaa ggattatgtt ctcaagaggg     1140
aaatgactat ttctatgaaa taataacaga agatgtgttg gaaataacaa tactagaaat     1200
cagaagggat gtttgtgata tcccttttagc aattgttgac ttgaaaagca aaggtaaaag     1260
tattaatgag aaaatggaga aatattctaa gactggtatt aaaagtgtc ttccctatga     1320
aaatattgac tcagagataa agcagactct tgggtcctac aatcttgatg taggacttaa     1380
gaaattaagt aataaagctg tacaaaataa aatatatatg gaacaacaga cagatgagct     1440
tgctgaaata actgaaaaag atgtaaacat tattggaacc aaaccaagta acttccgtga     1500
ccctaaaact gataacattt gtgaaggggt tgaaaacccc tgcaaagata aaattgatac     1560
tgaggaactg gaaggtgaat tagagtgcga tctggttgac aaagcagagt ttgatgataa     1620
atactgatt acaggattta acacattact accacatgct aatgaaacaa aggagatact     1680
agaactgaat tcacttgagg tgccgctttc tcctgatgat gaatcaaaag aattcttaga     1740
actggaatct attgagttac agaattctct ggtggtggat gaagaaaaag gggagctaag     1800
cccgtgcca ccgaatgtgc cactctccca agagtgtgtc acaaaaggcg ccatggagct     1860
atttacaact cagcttcctc tcagctgtga agctgagaaa cagccagaac tagaactacc     1920
tacagcccag ctgccttttag atgacaagat ggatcctttg tctttaggag ttagtcagaa     1980
agcacaggaa tccatgtgta ctgaggacat gagaaagtca agttgtgtag aatcttttga     2040
tgaccagcgc aggatgtcat tgcattaca tggagcagat tgtgatccta aaacacagaa     2100
tgaaatgaat atatgtgaag aagaatttgt agagtataaa aacagggatg ccatttcggc     2160
attgatgcct ttttctctga ggaagaaagc agtgatggaa gcaagcacia taatggttta     2220
ccagatcata tttcagntca attacagaac acctacactn tgaaagcctt tactgttgga     2280
tctaaatgtg ttgtgtggtc aagtntaaga aacanatggg ctaaatgtga gattttagaa     2340
acagctgaag aaggnacaag ggttttgaac ctttcaaag gtatggagga gatagtgaac     2400
cctgagaatg tctggaatgn nanaccctaa ttggataaga gtccacctga gaaaaggggt     2460
ttggaggtga tggagattta accgtggatn tatagctgtg gccaatcagt cagaagctgc     2520
ccntgaacaa gtggcatctt acgcagacca acagagtatt tgagaaaat      2569

```

&lt;210&gt; 579

&lt;211&gt; 752

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 579

```

Arg Val Lys Ala Thr Leu Ser Glu Arg Lys Ile Gly Asp Ser Cys Asp
 1              5              10              15
Lys Asp Leu Pro Leu Lys Phe Cys Glu Phe Pro Gln Lys Thr Ile Met
      20              25              30
Pro Gly Phe Lys Thr Thr Val Tyr Val Ser His Ile Asn Asp Leu Ser
      35              40              45
Asp Phe Tyr Val Gln Leu Ile Glu Asp Glu Ala Glu Ile Ser His Leu
      50              55              60
Ser Glu Arg Leu Asn Ser Val Lys Thr Arg Pro Glu Tyr Tyr Val Gly
      65              70              75              80
Pro Pro Leu Gln Arg Gly Asp Met Ile Cys Ala Val Phe Pro Glu Asp
      85              90              95
Asn Leu Trp Tyr Arg Ala Val Ile Lys Glu Gln Gln Pro Asn Asp Leu
      100             105             110
Leu Ser Val Gln Phe Ile Asp Tyr Gly Asn Val Ser Val Val His Thr
      115             120             125
Asn Lys Ile Gly Arg Leu Asp Leu Val Asn Ala Ile Leu Pro Gly Leu
      130             135             140

```

Cys Ile His Cys Ser Leu Gln Gly Phe Glu Val Pro Asp Asn Lys Asn  
 145 150 155 160  
 Ser Lys Lys Met Met His Tyr Phe Ser Gln Arg Thr Ser Glu Ala Ala  
 165 170 175  
 Ile Arg Cys Glu Phe Val Lys Phe Gln Asp Arg Trp Glu Val Ile Leu  
 180 185 190  
 Ala Asp Glu His Gly Ile Ile Ala Asp Asp Met Ile Ser Arg Tyr Ala  
 195 200 205  
 Leu Ser Glu Lys Ser Gln Val Glu Leu Ser Thr Gln Val Ile Lys Ser  
 210 215 220  
 Ala Ser Ser Lys Ser Val Asn Lys Ser Asp Ile Asp Thr Ser Val Phe  
 225 230 235 240  
 Leu Asn Trp Tyr Asn Pro Glu Lys Lys Met Ile Arg Ala Tyr Ala Thr  
 245 250 255  
 Val Ile Asp Gly Pro Glu Tyr Phe Trp Cys Gln Phe Ala Asp Thr Glu  
 260 265 270  
 Lys Leu Gln Cys Leu Glu Val Glu Val Gln Thr Ala Gly Glu Gln Val  
 275 280 285  
 Ala Asp Arg Arg Asn Cys Ile Pro Cys Pro Tyr Ile Gly Asp Pro Cys  
 290 295 300  
 Ile Val Arg Tyr Arg Glu Asp Gly His Tyr Tyr Arg Ala Leu Ile Thr  
 305 310 315 320  
 Asn Ile Cys Glu Asp Tyr Leu Val Ser Val Arg Leu Val Asp Phe Gly  
 325 330 335  
 Asn Ile Glu Asp Cys Val Asp Pro Lys Ala Leu Trp Ala Ile Pro Ser  
 340 345 350  
 Glu Leu Leu Ser Val Pro Met Gln Ala Phe Pro Cys Cys Leu Ser Gly  
 355 360 365  
 Phe Asn Ile Ser Glu Gly Leu Cys Ser Gln Glu Gly Asn Asp Tyr Phe  
 370 375 380  
 Tyr Glu Ile Ile Thr Glu Asp Val Leu Glu Ile Thr Ile Leu Glu Ile  
 385 390 395 400  
 Arg Arg Asp Val Cys Asp Ile Pro Leu Ala Ile Val Asp Leu Lys Ser  
 405 410 415  
 Lys Gly Lys Ser Ile Asn Glu Lys Met Glu Lys Tyr Ser Lys Thr Gly  
 420 425 430  
 Ile Lys Ser Ala Leu Pro Tyr Glu Asn Ile Asp Ser Glu Ile Lys Gln  
 435 440 445  
 Thr Leu Gly Ser Tyr Asn Leu Asp Val Gly Leu Lys Lys Leu Ser Asn  
 450 455 460  
 Lys Ala Val Gln Asn Lys Ile Tyr Met Glu Gln Gln Thr Asp Glu Leu  
 465 470 475 480  
 Ala Glu Ile Thr Glu Lys Asp Val Asn Ile Ile Gly Thr Lys Pro Ser  
 485 490 495  
 Asn Phe Arg Asp Pro Lys Thr Asp Asn Ile Cys Glu Gly Phe Glu Asn  
 500 505 510  
 Pro Cys Lys Asp Lys Ile Asp Thr Glu Glu Leu Glu Gly Glu Leu Glu  
 515 520 525  
 Cys His Leu Val Asp Lys Ala Glu Phe Asp Asp Lys Tyr Leu Ile Thr  
 530 535 540  
 Gly Phe Asn Thr Leu Leu Pro His Ala Asn Glu Thr Lys Glu Ile Leu  
 545 550 555 560  
 Glu Leu Asn Ser Leu Glu Val Pro Leu Ser Pro Asp Asp Glu Ser Lys  
 565 570 575  
 Glu Phe Leu Glu Leu Glu Ser Ile Glu Leu Gln Asn Ser Leu Val Val

580 585 590  
 Asp Glu Glu Lys Gly Glu Leu Ser Pro Val Pro Pro Asn Val Pro Leu  
 595 600 605  
 Ser Gln Glu Cys Val Thr Lys Gly Ala Met Glu Leu Phe Thr Leu Gln  
 610 615 620  
 Leu Pro Leu Ser Cys Glu Ala Glu Lys Gln Pro Glu Leu Glu Leu Pro  
 625 630 635 640  
 Thr Ala Gln Leu Pro Leu Asp Asp Lys Met Asp Pro Leu Ser Leu Gly  
 645 650 655  
 Val Ser Gln Lys Ala Gln Glu Ser Met Cys Thr Glu Asp Met Arg Lys  
 660 665 670  
 Ser Ser Cys Val Glu Ser Phe Asp Asp Gln Arg Arg Met Ser Leu His  
 675 680 685  
 Leu His Gly Ala Asp Cys Asp Pro Lys Thr Gln Asn Glu Met Asn Ile  
 690 695 700  
 Cys Glu Glu Glu Phe Val Glu Tyr Lys Asn Arg Asp Ala Ile Ser Ala  
 705 710 715 720  
 Leu Met Pro Phe Ser Leu Arg Lys Lys Ala Val Met Glu Ala Ser Thr  
 725 730 735  
 Ile Met Val Tyr Gln Ile Ile Phe Gln Asn Tyr Arg Thr Pro Thr Leu  
 740 745 750

<210> 580  
 <211> 2077  
 <212> DNA  
 <213> Homo Sapiens

<400> 580  
 ctgttgattt tttggagaaa tatgggagaa acagtgggaat atttttatga catttttagg 60  
 aaatcacctg gcttggttgg tagtcccaca ctgactttcc ttatgataat tctacagatg 120  
 gaggtgactc gagcagtgat gaggataaag aataacatga aactcctgtg gaagtagaac 180  
 tcatgactca ggttgacca gaggatatca ctcttcagag tggcagagat gaactaaatg 240  
 aggagctcat tcaggaagaa agctctgaag acgaaggaga atatgaagag gttagaaaag 300  
 atcaggattc tgttggtgaa atgaaggatg aaggggaaga gacttaaatt atcctgatac 360  
 taccattgac ttgtctcacc ttcaacccca aaggtccatc cagaaattgg cttcaaaaga 420  
 ggaatcttct aattctagt acagtaaatac acagagccgg agacatttgt cagccaagga 480  
 aagaaggga atgaaaaaga aaaaacttcc aagtgactca ggagatttag aagcgttaga 540  
 gggaaaggat aaagaaaaag aaagtactgt acacattgaa actcatcaga acacaagcaa 600  
 aaatgttgcg gctgtgcagc caatgaaacg aggacaaaag agtaaaatga aaaaaatgaa 660  
 agaaaaatac aaagaccagg atgaagaaga ccgtgaactt atcatgaagt tgctggggtc 720  
 tgcaggttca aacaaagaag aaaaagggaag gaaggggaag aaaggaaaaa caaaggacga 780  
 acctgtgaag aaacagcccc agaaacctag aggtggacag aggttctctg acaacattaa 840  
 gaaagaaact ccgttccttg aggttataac tcatgagtta caagactttg ctgtagatga 900  
 tccacatgat gacaaggaag agcaagatct ggatcaacag ggaaatgagg aaaacctatt 960  
 tgattctttg acaggccagc cacatcctga agatgtacta ctgtttgcca ttccaatatg 1020  
 tgccccttac accaccatga caaactacaa atataaagtg aaacttactc ctggagtga 1080  
 gaaaaaggga aaagctgcaa aaacagcctt gaatagtttc atgcattcca aagaagcaac 1140  
 agcaagagaa aaagacttat tccgcagcgt aaaggacaca gatttatcaa gaaacattcc 1200  
 tggcaaatg aaaaagtgtc gcaccaatc ttctgaacgt aaaaaggaaa tagctgaaat 1260  
 gaaattctaa aatatattgag aagagccaat tttatagcct tttggaagtt caaagatgaa 1320  
 agcaccatgt atcaggattt ccgcattata aaaatgaact aaacattgcc ttgctatatt 1380  
 caccaaaagg acttaattct tgttttttcc ccagttttat atagaggaaa cactgtctat 1440  
 gataggattt ccaaaagtat ttgtggacag ttaaatagcta attatataca tctgtagtta 1500  
 ttctacattt tcttgaaatt tgggagggtta ataccaagta ttcatttcat gatgtaaaga 1560  
 aactgaacag tgaagtggct tgattgctta aactattgac ttgtaagtc tactgtatat 1620

```

aacatcta atatatatta caggccaaat gaactaaaca ttgccttgct atattcacca 1680
aaaggactta attcttggtt ttttccagtt ttatataga ggaacacta tgataggatt 1740
tcctaaagta tttgtggaca gttaaatgct aattatatac atctgtagtt attctacatt 1800
ttcttgaaat ttgagagggt aataccaagt attcatttca tgatgtaaag aaactgaaca 1860
gtgaagtggc ttgattgctt aaactattga cttggtaagt ctactgtata taacatctaa 1920
tatatatata ttataggcca gctacaaggg gtttaaata ttaggattgt gtcttgaaaa 1980
ctaagtattg gagtggattt tcttctgctt tcattgatac ttgtcagaaa aaaatattag 2040
accaaagtgt aaaatataag taataattct catgaaa 2077

```

<210> 581  
 <211> 312  
 <212> PRT  
 <213> Homo Sapiens

<400> 581

Arg	Gly	Arg	Asp	Leu	Asn	Tyr	Pro	Asp	Thr	Thr	Ile	Asp	Leu	Ser	His
1			5						10					15	
Leu	Gln	Pro	Gln	Arg	Ser	Ile	Gln	Lys	Leu	Ala	Ser	Lys	Glu	Glu	Ser
			20					25					30		
Ser	Asn	Ser	Ser	Asp	Ser	Lys	Ser	Gln	Ser	Arg	Arg	His	Leu	Ser	Ala
			35				40					45			
Lys	Glu	Arg	Arg	Glu	Met	Lys	Lys	Lys	Lys	Leu	Pro	Ser	Asp	Ser	Gly
			50			55					60				
Asp	Leu	Glu	Ala	Leu	Glu	Gly	Lys	Asp	Lys	Glu	Lys	Glu	Ser	Thr	Val
65					70				75					80	
His	Ile	Glu	Thr	His	Gln	Asn	Thr	Ser	Lys	Asn	Val	Ala	Ala	Val	Gln
				85				90						95	
Pro	Met	Lys	Arg	Gly	Gln	Lys	Ser	Lys	Met	Lys	Lys	Met	Lys	Glu	Lys
			100					105					110		
Tyr	Lys	Asp	Gln	Asp	Glu	Glu	Asp	Arg	Glu	Leu	Ile	Met	Lys	Leu	Leu
			115				120					125			
Gly	Ser	Ala	Gly	Ser	Asn	Lys	Glu	Glu	Lys	Gly	Lys	Lys	Gly	Lys	Lys
			130				135					140			
Gly	Lys	Thr	Lys	Asp	Glu	Pro	Val	Lys	Lys	Gln	Pro	Gln	Lys	Pro	Arg
145					150					155					160
Gly	Gly	Gln	Arg	Val	Ser	Asp	Asn	Ile	Lys	Lys	Glu	Thr	Pro	Phe	Leu
				165					170					175	
Glu	Val	Ile	Thr	His	Glu	Leu	Gln	Asp	Phe	Ala	Val	Asp	Asp	Pro	His
			180					185					190		
Asp	Asp	Lys	Glu	Glu	Gln	Asp	Leu	Asp	Gln	Gln	Gly	Asn	Glu	Glu	Asn
			195				200					205			
Leu	Phe	Asp	Ser	Leu	Thr	Gly	Gln	Pro	His	Pro	Glu	Asp	Val	Leu	Leu
			210			215					220				
Phe	Ala	Ile	Pro	Ile	Cys	Ala	Pro	Tyr	Thr	Thr	Met	Thr	Asn	Tyr	Lys
225					230					235					240
Tyr	Lys	Val	Lys	Leu	Thr	Pro	Gly	Val	Gln	Lys	Lys	Gly	Lys	Ala	Ala
				245					250					255	
Lys	Thr	Ala	Leu	Asn	Ser	Phe	Met	His	Ser	Lys	Glu	Ala	Thr	Ala	Arg
			260					265					270		
Glu	Lys	Asp	Leu	Phe	Arg	Ser	Val	Lys	Asp	Thr	Asp	Leu	Ser	Arg	Asn
			275				280					285			
Ile	Pro	Gly	Lys	Val	Lys	Ser	Val	Cys	Thr	Gln	Ser	Ser	Glu	Arg	Lys
			290				295				300				
Lys	Glu	Ile	Ala	Glu	Met	Lys	Phe								
305						310									

<210> 582  
 <211> 3309  
 <212> DNA  
 <213> Homo Sapiens

<400> 582

cgagagccga	gacccgaggc	ggagggcgac	cgagagccgg	ccatgtcggt	ggtgggggtg	60
gacgtgggct	cgagagctg	ctacatcgcg	gtagcccg	ccgggggcat	cgagaccatc	120
gccaatgagt	tcagcgaccg	gtgcaccccg	tcagtcatat	catttggatc	aaaaaataga	180
acaatcgag	ttgcagccaa	aaatcagcaa	atcactcatg	caaacaatac	ggtgtctaac	240
ttcaaaagat	ttcatggccg	agcattcaat	gaccccttca	ttcaaaagga	gaaggaaaac	300
ttgagttacg	atttgggtcc	attgaaaaat	ggtggaggtg	gaataaagg	aatgtacatg	360
ggtgaagaac	atctatattg	tgtggagcag	ataacagcca	tgttgttgac	taagctgaag	420
gaaactgctg	aaaacagcct	caagaaacca	gtaacagatt	gtgttatttc	agtcctcc	480
ttctttacag	atgctgagag	gcgatctgtg	ttagatgctg	cacagattgt	tggcctaacc	540
tgtttaagac	ttatgaatga	catgacagct	gttgctttga	attacggaat	ttataagcag	600
gatctcccaa	gcttgatga	gaaacctcgg	atagttggtt	ttgttgatat	gggacattca	660
gcttttcaag	tgtctgcttg	tgcttttaac	aagggaat	tgaaggta	gggaacagct	720
tttgatcctt	tcttaggagg	aaaaaacttc	gatgaaaagt	tagtggaaca	ttttgtgca	780
gaatttaaaa	ctaagtacaa	gttgatgca	aaatccaaa	tacgagcact	cctacgtctg	840
tatcaggaat	gtgaaaact	gaaaagcta	atgagctcta	acagcacaga	ccttccactg	900
aatatcgaat	gctttatgaa	tgataaagat	gtttccggaa	agatgaacag	gtcacaattt	960
gaagaactct	gtgctgaact	tctgcaaaag	atagaagtac	ccctttattc	actgttgga	1020
caaaactcatc	tcaaagtaga	agatgtgagt	gcagttgaga	ttgttgagg	cgctacacga	1080
attccagctg	tgaaggaaa	aattgccaaa	ttctttggaa	aagatattag	cacaacactc	1140
aatgcagatg	aagcagtagc	cagaggatgt	gcattacagt	gtgcaatact	ttccccggca	1200
tttaaagtta	gagaattttc	cgtcacagat	gcagttcctt	ttccaatata	tctgatctgg	1260
aacctgatt	cagaagatac	tgaagggtgt	catgaagtct	ttagtcgaaa	ccatgctgct	1320
cctttctcca	aagttctcac	ctttctgaga	agggggcctt	ttgagctaga	agctttctat	1380
tctgatcccc	aaggagtcc	atatccagaa	gcaaaaatag	gccgctttgt	agttcagaat	1440
gtttctgcac	agaaagatgg	agaaaaatct	agagtaaaag	tcaaagtgcg	agtcaacacc	1500
catggcattt	tcaccatctc	tacggcatct	atgggtggaga	aagtcccaac	tgaggagaat	1560
gaaatgtctt	ctgaagctga	catggagtgt	ctgaatcaga	gaccaccaga	aaaccagac	1620
actgataaaa	atgtccagca	agacaacagt	gaagctggaa	cacagcccca	ggtacaaact	1680
gatgctcaac	aaacctcaca	gtctccccct	tcacctgaac	ttacctcaga	agaaaacaaa	1740
atcccgatg	ctgacaaagc	aaatgaaaaa	aaagttgacc	agcctccaga	agctaaaaag	1800
cccaaaataa	aggtgggtgaa	tgttgagctg	cctattgaag	ccaacttgg	ctggcagtta	1860
gggaaagacc	ttcttaacat	gtataattgag	acagagggtg	agatgataat	gcaagataaa	1920
ttggaaaaag	aaaggaatga	tgctaaaaat	gcagttgagg	aatatgtgta	tgagttcaga	1980
gacaagctgt	gtggaccata	tgaaaaat	atatgtgagc	aggatcatca	aaattttttg	2040
agactcctca	cagaaactga	agactggctg	tatgaagaag	gagaggacca	agctaaacaa	2100
gcataatgtt	acaagttgga	agaattaatg	aaaattggca	ctccagttaa	agttcggttt	2160
caggaagctg	aagaacggcc	aaaaatgttt	gaagaactag	gacagaggct	gcagcattat	2220
gccaaagatg	cagctgactt	cagaaataag	gatgagaaat	acaaccatat	tgatgagtct	2280
gaaatgaaaa	aagtgagaa	gtctgttaat	gaagtgtg	aatggatgaa	taatgtcatg	2340
aatgctcagg	ctaaaaagag	tcttgatcag	gatccagttg	tacgtgctca	ggaaattaaa	2400
acaaaaatca	aggaattgaa	caacacatgt	gaacccgttg	taacacaacc	gaaacccaaa	2460
attgaatcac	ccaaactgga	aagaactcca	aatggcccaa	atattgataa	aaaggaagaa	2520
gatttagaag	acaaaaacaa	ttttggtgct	gaacctccac	atcagaatgg	tgaatgttac	2580
cctaagtaga	aaaattctgt	taatattggac	ttggactaga	taaccttaaa	ttggcctatt	2640
ccttcaatta	ataaaatatt	tttgccatag	tatgtgactc	tacataacat	actgaaacta	2700
tttatatttt	cttttttaag	gatatttaga	aattttgtgt	attatatgga	aaaagaaaaa	2760
aagcttaagt	ctgtagtctt	tatgatccta	aaagggaata	ttgccttgg	aactttcaga	2820
ttcctgtgga	attgtgaatt	catactaagc	tttctgtgca	gtctcaccat	ttgcatcact	2880
gaggatgaaa	ctgacttttg	tcttttgagg	aaaaaaaact	gtactgcttg	ttcaagaggg	2940

```

ctgtgattaa aatctttaag catttgttcc tgccaaggta gttttcttgc attttgctct 3000
ccattcagca tgtgtgtggg tgtggatgtt tataaacaag actaagtctg acttcataag 3060
ggctttctaa aaccatttct gtccaagaga aaatgacttt ttgctttgat attaaaaatt 3120
caatgagtaa aacaaaagct agtcaaagt gtttagcagca tgcagaacaa aaactttaaa 3180
ctttctctct cactatacag tatattgtca tgtgaaagtg tggaatggaa gaaatgtcga 3240
tcctgttgta actgattgtg aacactttta tgagctttta aataaagttc atcttatggg 3300
gtcatttct 3309

```

&lt;210&gt; 583

&lt;211&gt; 872

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 583

```

Arg Arg Pro Arg Pro Glu Ala Glu Ala Asp Arg Glu Pro Ala Met Ser
1          5          10          15
Val Val Gly Leu Asp Val Gly Ser Gln Ser Cys Tyr Ile Ala Val Ala
20          25          30
Arg Ala Gly Gly Ile Glu Thr Ile Ala Asn Glu Phe Ser Asp Arg Cys
35          40          45
Thr Pro Ser Val Ile Ser Phe Gly Ser Lys Asn Arg Thr Ile Gly Val
50          55          60
Ala Ala Lys Asn Gln Gln Ile Thr His Ala Asn Asn Thr Val Ser Asn
65          70          75          80
Phe Lys Arg Phe His Gly Arg Ala Phe Asn Asp Pro Phe Ile Gln Lys
85          90          95
Glu Lys Glu Asn Leu Ser Tyr Asp Leu Val Pro Leu Lys Asn Gly Gly
100         105         110
Val Gly Ile Lys Val Met Tyr Met Gly Glu Glu His Leu Phe Ser Val
115         120         125
Glu Gln Ile Thr Ala Met Leu Leu Thr Lys Leu Lys Glu Thr Ala Glu
130         135         140
Asn Ser Leu Lys Lys Pro Val Thr Asp Cys Val Ile Ser Val Pro Ser
145         150         155         160
Phe Phe Thr Asp Ala Glu Arg Arg Ser Val Leu Asp Ala Ala Gln Ile
165         170         175
Val Gly Leu Asn Cys Leu Arg Leu Met Asn Asp Met Thr Ala Val Ala
180         185         190
Leu Asn Tyr Gly Ile Tyr Lys Gln Asp Leu Pro Ser Leu Asp Glu Lys
195         200         205
Pro Arg Ile Val Val Phe Val Asp Met Gly His Ser Ala Phe Gln Val
210         215         220
Ser Ala Cys Ala Phe Asn Lys Gly Lys Leu Lys Val Leu Gly Thr Ala
225         230         235         240
Phe Asp Pro Phe Leu Gly Gly Lys Asn Phe Asp Glu Lys Leu Val Glu
245         250         255
His Phe Cys Ala Glu Phe Lys Thr Lys Tyr Lys Leu Asp Ala Lys Ser
260         265         270
Lys Ile Arg Ala Leu Leu Arg Leu Tyr Gln Glu Cys Glu Lys Leu Lys
275         280         285
Lys Leu Met Ser Ser Asn Ser Thr Asp Leu Pro Leu Asn Ile Glu Cys
290         295         300
Phe Met Asn Asp Lys Asp Val Ser Gly Lys Met Asn Arg Ser Gln Phe
305         310         315         320
Glu Glu Leu Cys Ala Glu Leu Leu Gln Lys Ile Glu Val Pro Leu Tyr

```

Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala Gln Ala  
 770 775 780  
 Lys Lys Ser Leu Asp Gln Asp Pro Val Val Arg Ala Gln Glu Ile Lys  
 785 790 795 800  
 Thr Lys Ile Lys Glu Leu Asn Asn Thr Cys Glu Pro Val Val Thr Gln  
 805 810 815  
 Pro Lys Pro Lys Ile Glu Ser Pro Lys Leu Glu Arg Thr Pro Asn Gly  
 820 825 830  
 Pro Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu Asp Lys Asn Asn Phe  
 835 840 845  
 Gly Ala Glu Pro Pro His Gln Asn Gly Glu Cys Tyr Pro Asn Glu Lys  
 850 855 860  
 Asn Ser Val Asn Met Asp Leu Asp  
 865 870

&lt;210&gt; 584

&lt;211&gt; 2918

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 584

ataactggag	ctcgcgcgcc	tgacaggtcga	cactagtggga	tccaaagaat	tcggcacgag	60
gtgacgacaa	cagggacaag	gactccgaga	agaccaagag	gtggtccaag	cccaggaagc	120
gctccctgat	ggagatggag	gggaaggagg	atgcccttta	agggtgctgaa	gtgcatgtac	180
tgtggacact	cctttgagtc	cttgacaggac	ctcagcgtcc	acatgatcaa	aaccaagcat	240
taccagaaag	tgccctctgaa	ggagccagtg	ccagccatca	ccaaactggt	cccctccacc	300
aaaaagcggg	cgcttcagga	cctggcgccc	cctgctccc	ctgagccagc	aggaatggcc	360
gcagaggtgg	ccctgagtg	gtcagccaag	gatcagaaaag	cagcgaaccc	gtacgtcacg	420
cccaataacc	gctatggcta	ccagaatggc	gccagctaca	cctggcagtt	tgaggcccg	480
aaggcgcaga	tcctcaagt	catggagtgt	ggcagctccc	acgacacgct	gcagcagctc	540
accgcccaca	tgatgggtcac	cgggcacttc	ctgaaagtga	ccacctcggc	ttctaagaag	600
ggcaagcagt	tggtgctgga	ccctgtggtg	gaagagaaga	tccagtccat	cccactaccg	660
cccaccaccc	acacgcgggt	gccggcctcc	agcatcaaaa	agcagccga	ctctcccgcg	720
gggtccacga	cttctgaaga	aaagaaagag	ccagagaagg	agaagccgcc	tgtggctggc	780
gacgcggaga	agatcaagga	ggagagtgg	gacagcttg	agaaatttga	gcccagcacc	840
ctgtaccctg	acctgcgtga	ggaggacctg	gacgacagcc	ccaagggagg	gctggacatt	900
ctcaagtccc	tggaagaatac	cgtctccacg	gccattagca	aagctcagaa	tggtgcgccc	960
tcattgggtg	gctaccccag	catccatgca	gcctaccagc	tcccgggcac	cgtgaagcca	1020
ctgccggcgg	ccgtgcagag	cgtgcaggtg	cagccgtcct	atgctggcgg	cgtgaagtcg	1080
ctgtcttcg	ccgagcaca	cgccctcctg	cactccccag	ggagcctcac	gccccaccg	1140
cacaagagca	acgtgtctgc	catggaggag	ctggtggaga	agggtcacgg	caaggtcaac	1200
atcaagaagg	aggagagacc	ccctgagaag	gagaagagct	ccctggccaa	ggctgcgtcc	1260
cccatagcaa	aagagaataa	agatttccc	aaaacggagg	aagtcagcgg	caaaccacag	1320
aagaagggcc	ctgagggcca	gacttgggaa	gccaaaaagg	agggaccgct	ggacgttcac	1380
accccaaagt	gcacagagcc	tctcaaagca	aaggtcacca	acggctgtaa	caacctgggg	1440
atcatcatgg	accactcacc	ggagccttcc	ttcatcaacc	cgctgagcgc	tttgagtc	1500
atcatgaaca	cccacctggg	caaggtgtcc	aagcccgtga	gtccctcgct	ggacccgctg	1560
gcgatgctgt	acaagatcag	caacagcatg	ctggacaagc	cggtgtaccc	cgccaccct	1620
gtgaagcagg	cgatgccat	cgaccgctac	tattatgaaa	acagcgacca	gcccattgac	1680
tttaaccaagt	ccaagaacaa	gccgtgggtg	tccagcgtgg	ctgattcggt	ggcatcacct	1740
ctgcgggaga	gcgcactcat	ggacatctcc	gacatggtga	aaaacctcac	aggccgcctg	1800
acgcccaggt	cctccacgcc	ctccacagtt	tcagagaagt	ccgatgctga	tggcagcagc	1860
tttgaggagg	cgttggacga	gctgtcaccg	gtccacaaga	ggaagggccg	gcagtccaac	1920
tggaacccgc	agcaccttct	catcctgcag	gccagttcg	cctcgagctt	gcgggagacc	1980
acagaaggca	agtacatcat	gtcggacttg	ggccgcgagg	agaggggtga	catctcgaag	2040



```

tttactgggc tctccatgac caccatcagc cactggctgg ccaatgtgaa gtaccagttg 2100
aggaggacag ggggaacgaa attcctaaag aacctggaca cagggcatcc tgttttcttt 2160
tgcaacgatt gtgcctctca gttcagaact gcttctacat acataagtca tttggagaca 2220
cacttgggct tcagcctgaa ggatctctcc aagctgccac tcaatcagat tcaagaacag 2280
cagaatgttt cgaaagtcct caccaacaaa actctggggc cactgggggc caccgaggaa 2340
gacttgggct ccacattcca atgtaagctc tgcaaccgga cttttgcgaa gcaagcacgc 2400
agtcaaactg caccttagta agaccacagg caagtctccc gaggaccacc tgatctatgt 2460
gactgagttg gagaaacagt agcgtocagg tatgcaagag accgcggaac attgcactaa 2520
acgtcgtcga gctgcactag gcatggcctg agcctctgaa atcagtcttt cctttgttgc 2580
tgcccgccct ctctggacct tggttttcct acacatatct tgtatatatta tatgctttct 2640
gtccgatctg tgcattgtat ttttcttttt ccgtgagtca aagtctgacc tttattttca 2700
acatctgttt ttggtgttaa gctatctttt gtaggaaata gtggggcaca ctactcagag 2760
acattattta gcagtaaaga aagacacaaa taacaatgat aaaaagacat cctaaaatgg 2820
tgaagttgcc atgacaataa aggtcataga acctggtagt gtcaaattta accctttgag 2880
gactgtaatt gcatttctgt gcctttcact tgaaaaaa 2918

```

&lt;210&gt; 585

&lt;211&gt; 687

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 585

```

Met Ala Ala Glu Val Ala Leu Ser Glu Ser Ala Lys Asp Gln Lys Ala
  1          5          10          15
Ala Asn Pro Tyr Val Thr Pro Asn Asn Arg Tyr Gly Tyr Gln Asn Gly
  20          25          30
Ala Ser Tyr Thr Trp Gln Phe Glu Ala Arg Lys Ala Gln Ile Leu Lys
  35          40          45
Cys Met Glu Cys Gly Ser Ser His Asp Thr Leu Gln Gln Leu Thr Ala
  50          55          60
His Met Met Val Thr Gly His Phe Leu Lys Val Thr Thr Ser Ala Ser
  65          70          75          80
Lys Lys Gly Lys Gln Leu Val Leu Asp Pro Val Val Glu Glu Lys Ile
  85          90          95
Gln Ser Ile Pro Leu Pro Pro Thr Thr His Thr Arg Leu Pro Ala Ser
 100          105          110
Ser Ile Lys Lys Gln Pro Asp Ser Pro Ala Gly Ser Thr Thr Ser Glu
 115          120          125
Glu Lys Lys Glu Pro Glu Lys Glu Lys Pro Pro Val Ala Gly Asp Ala
 130          135          140
Glu Lys Ile Lys Glu Glu Ser Glu Asp Ser Leu Glu Lys Phe Glu Pro
 145          150          155          160
Ser Thr Leu Tyr Pro Tyr Leu Arg Glu Glu Asp Leu Asp Asp Ser Pro
 165          170          175
Lys Gly Gly Leu Asp Ile Leu Lys Ser Leu Glu Asn Thr Val Ser Thr
 180          185          190
Ala Ile Ser Lys Ala Gln Asn Gly Ala Pro Ser Trp Gly Gly Tyr Pro
 195          200          205
Ser Ile His Ala Ala Tyr Gln Leu Pro Gly Thr Val Lys Pro Leu Pro
 210          215          220
Ala Ala Val Gln Ser Val Gln Val Gln Pro Ser Tyr Ala Gly Gly Val
 225          230          235          240
Lys Ser Leu Ser Ser Ala Glu His Asn Ala Leu Leu His Ser Pro Gly
 245          250          255
Ser Leu Thr Pro Pro Pro His Lys Ser Asn Val Ser Ala Met Glu Glu

```

260	265	270
Leu Val Glu Lys Val Thr Gly Lys Val Asn Ile Lys Lys Glu Glu Arg		
275	280	285
Pro Pro Glu Lys Glu Lys Ser Ser Leu Ala Lys Ala Ala Ser Pro Ile		
290	295	300
Ala Lys Glu Asn Lys Asp Phe Pro Lys Thr Glu Glu Val Ser Gly Lys		
305	310	315
Pro Gln Lys Lys Gly Pro Glu Ala Glu Thr Trp Glu Ala Lys Lys Glu		
325	330	335
Gly Pro Leu Asp Val His Thr Pro Asn Gly Thr Glu Pro Leu Lys Ala		
340	345	350
Lys Val Thr Asn Gly Cys Asn Asn Leu Gly Ile Ile Met Asp His Ser		
355	360	365
Pro Glu Pro Ser Phe Ile Asn Pro Leu Ser Ala Leu Gln Ser Ile Met		
370	375	380
Asn Thr His Leu Gly Lys Val Ser Lys Pro Val Ser Pro Ser Leu Asp		
385	390	395
Pro Leu Ala Met Leu Tyr Lys Ile Ser Asn Ser Met Leu Asp Lys Pro		
405	410	415
Val Tyr Pro Ala Thr Pro Val Lys Gln Ala Asp Ala Ile Asp Arg Tyr		
420	425	430
Tyr Tyr Glu Asn Ser Asp Gln Pro Ile Asp Leu Thr Lys Ser Lys Asn		
435	440	445
Lys Pro Leu Val Ser Ser Val Ala Asp Ser Val Ala Ser Pro Leu Arg		
450	455	460
Glu Ser Ala Leu Met Asp Ile Ser Asp Met Val Lys Asn Leu Thr Gly		
465	470	475
Arg Leu Thr Pro Lys Ser Ser Thr Pro Ser Thr Val Ser Glu Lys Ser		
485	490	495
Asp Ala Asp Gly Ser Ser Phe Glu Glu Ala Leu Asp Glu Leu Ser Pro		
500	505	510
Val His Lys Arg Lys Gly Arg Gln Ser Asn Trp Asn Pro Gln His Leu		
515	520	525
Leu Ile Leu Gln Ala Gln Phe Ala Ser Ser Leu Arg Glu Thr Thr Glu		
530	535	540
Gly Lys Tyr Ile Met Ser Asp Leu Gly Pro Gln Glu Arg Val His Ile		
545	550	555
Ser Lys Phe Thr Gly Leu Ser Met Thr Thr Ile Ser His Trp Leu Ala		
565	570	575
Asn Val Lys Tyr Gln Leu Arg Arg Thr Gly Gly Thr Lys Phe Leu Lys		
580	585	590
Asn Leu Asp Thr Gly His Pro Val Phe Phe Cys Asn Asp Cys Ala Ser		
595	600	605
Gln Phe Arg Thr Ala Ser Thr Tyr Ile Ser His Leu Glu Thr His Leu		
610	615	620
Gly Phe Ser Leu Lys Asp Leu Ser Lys Leu Pro Leu Asn Gln Ile Gln		
625	630	635
Glu Gln Gln Asn Val Ser Lys Val Leu Thr Asn Lys Thr Leu Gly Pro		
645	650	655
Leu Gly Ala Thr Glu Glu Asp Leu Gly Ser Thr Phe Gln Cys Lys Leu		
660	665	670
Cys Asn Arg Thr Phe Ala Lys Gln Ala Arg Ser Gln Thr Ala Pro		
675	680	685

&lt;210&gt; 586

<211> 1898  
 <212> DNA  
 <213> Homo Sapiens

<400> 586

ccgccttggg	tcagcctgct	cccctgcttc	ctgccgcagt	ggggggcgtc	agcctggcca	60
cctcccagct	cccaagccca	cccctggggc	ccaccgtccc	cccacagcca	ccctcggccc	120
tggagtcgga	tgggggaagg	cgcccccca	gggtgggctt	tgtggacagc	accatcaaga	180
gcctggacga	naagctgcgg	actctgctct	accaggagca	cgtgcccacc	tcctcagcct	240
cagctgggac	ccctgtggag	gtgggcgaca	ganacttcac	cctggagccc	ctgagagggg	300
accagccccg	ctcanaggtc	tgcggggggg	acctggccct	gccccagtg	cctaaggagg	360
cggctctcagg	gcgtgtccag	ctgccccagc	ccttgggtga	gaagtcagaa	ctggccccc	420
ctcgaggggc	cgtgatggag	cagggcacgt	cctcgtcaat	gacagagtcg	tctcccagga	480
gtatgctagg	ctatgacaga	gatggaaggc	aggtggcctc	agactcccat	gtggtcccca	540
gcgtccccc	ggatgtacct	gcttttgtga	gacctgcaag	tgtgganccc	acanacaggg	600
atggtggana	agctgganaa	agctcggcan	agcccccgcc	gagtgcacatg	ggcanngtgg	660
ggggccaggc	tagccacccc	cagacactcg	gcncctcgagc	tttgggggtcc	cctcggaanc	720
gtccagatca	ccaggatgtc	agctcaccag	ccaagactgt	gggcccgttcc	tcggtggtca	780
gcactcagga	cgagtggacc	ctggcctccc	cccacagcct	gagatactct	gccccacccg	840
acgtctacct	ggacgaggcc	ccctccagcc	ccgacgtgaa	gctggcagtg	cggcggggcg	900
agacggcctc	ctccatcgag	gtcggcggtg	gagagcccgt	gtccagcgac	tctggggagc	960
agggccctcg	ggcgagaccc	ccggtgcaga	agcaggcgtc	cctgcccgtg	agtggcagcg	1020
tggctggcga	cttcgtgaag	aaggccaccg	cttcctgcag	aggccttctc	gggccgggctt	1080
cgtcggggcc	cgagacaccc	agcagggtgg	gcataaaggt	ccccacgac	agcgtgacct	1140
ccttcatttc	ccagtcgtcc	tacatcagca	gcgacaatga	ttcggagctc	gaggatgctg	1200
acataaagaa	ggagctgcan	agtctgcggg	agaagcacct	gaaggagatc	tcggagctgc	1260
agagccagca	gaagcaggag	atcgaagctc	tgtnccggcc	cctgggcaag	ccactgcccc	1320
ccaagctggg	cttcttccac	acggcacccc	ccactggccg	ccgganaaaa	accancaaga	1380
ncaagctgaa	ngcaggcaag	ctgctaaatc	ccctgggtcg	gcagctcaag	gtcgtggcct	1440
ccaacacagg	tcacttggct	gactccanca	naagccctcc	cgctaangac	ctgcccnaag	1500
cagtgtgggg	ctcactgcan	acaacacggg	cctgaacggg	aangcagtcg	anaccancan	1560
ccctgtcccg	tcgggggctc	cctgtcttcn	gacatctgct	ccggcttacc	antgatggaa	1620
gcggaacgcg	tngncaangg	tcctccacca	acaacctggc	ccaggcctga	accaagcccc	1680
accgcgcctg	cacgtccaag	cgcangtgaa	caacancaac	nacaagaaag	gttcttcncc	1740
gacgaactgc	acaanctggg	ggacnaatgg	acaacaanan	ngtggggggc	gcgcactgaa	1800
accacnctc	naccctnaa	ncnnaaccnc	aacttccana	cattgaggcc	cgcaggtggg	1860
ctgcctctgg	naagcccggc	tttnaccccc	ctccaaca			1898

<210> 587  
 <211> 399  
 <212> PRT  
 <213> Homo Sapiens

<400> 587

Ala	Leu	Gly	Gln	Pro	Ala	Pro	Leu	Leu	Pro	Ala	Ala	Val	Gly	Ala	Val
1				5					10					15	
Ser	Leu	Ala	Thr	Ser	Gln	Leu	Pro	Ser	Pro	Pro	Leu	Gly	Pro	Thr	Val
				20				25					30		
Pro	Pro	Gln	Pro	Pro	Ser	Ala	Leu	Glu	Ser	Asp	Gly	Glu	Gly	Pro	Pro
				35			40					45			
Pro	Arg	Val	Gly	Phe	Val	Asp	Ser	Thr	Ile	Lys	Ser	Leu	Asp	Lys	Leu
				50			55				60				
Arg	Thr	Leu	Leu	Tyr	Gln	Glu	His	Val	Pro	Thr	Ser	Ser	Ala	Ser	Ala
				65			70				75			80	
Gly	Thr	Pro	Val	Glu	Val	Gly	Asp	Arg	Phe	Thr	Leu	Glu	Pro	Leu	Arg

```
<210> 588
<211> 707
<212> DNA
<213> Homo Sapiens
```

-317-

acnateccan acagtttagta ccagatactt gcatgttana aggaggtnat tttcatgcca	600
gttcacagcn gtggggagcc ttttttattc anctcttgga tgatgatgan tccnaaggag	660
aagaattcac ngctccgagat ggctacatcc attatggaca aacagtc	707

<210> 589  
 <211> 551  
 <212> DNA  
 <213> Homo Sapiens

<400> 589	
actgtggctt ctgcatttca aatcagcact tgcagggaga caacgggggtt tttgaatagt	60
atcacctggg atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt	120
ttttgttaac tttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta	180
ggataccact gtggctgtan atgatgtgac actgggtgaa tttgtgctgg cgtttgtgta	240
acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tggcttgaat tggctcgaag	300
gattgtcctt gctgcactgc aatgtggccg cggccctggg tctggtgtgt angtaaaggt	360
aaggctgggt gaataaatga ttccaccatt tcggaccaaa gttactggaa cctggactgg	420
ttgccggacc catctccaac cttctcggaa tgcanaaatg tctgggacga cacagaacat	480
acctctccac acctgtacat aatttcagct tctacatccc caaaccacac tcgtaaattt	540
ggantnaaaa t	551

<210> 590  
 <211> 478  
 <212> DNA  
 <213> Homo Sapiens

<400> 590	
actgtggctt ctgcatttca aatcagcact tgcagggana caacgggggtt tttgaatagt	60
atcacctggg atgaaaagtt ttcccaagaa accacaaacn attgttcatt ttttctcctt	120
ttttgttaac ttttngccac actcaantca gtttaagtcc tagcaaaaan acggtagtta	180
ggataccact gtggctgtaa atgatntgac actgggtgaa tttgtgctgg cgtttgtgta	240
acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tggcttgaat tggctcgaag	300
gattgtcctt gctgcactgc aatgtggccg cgggacctgt tcttatntgt tgtaaangtn	360
aggttggtgg aataaatgat tccatcatnt cggancgaag ttgctgggaa ctggganngg	420
tnngcgggaa catctccgac cncceggaaa ngcagaagtg ttngtggnag accggaac	478

<210> 591  
 <211> 707  
 <212> DNA  
 <213> Homo Sapiens

<400> 591	
actgtggctt ctgcatttca aatcagcact tgcagggaga caacgggggtt tttgaatagt	60
atcacctggg atgaaaagtt ttcccaanaa accacaaacg attgttcatt ttttctcctt	120
ttttgttaac tttttgccac actcaantca gtttaantcc tancaaaaag acggtagtta	180
ggataccact gtggctgtaa atgatgtgac actgggtgaa tttgtgctgg cgtttgtgta	240
acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tggcttgaat tggctcgaag	300
gattgtcctt gctgcactgc aatgtggccg cggccctggg tctggtgtgt aggtaaaggt	360
aaggctgggt gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg	420
ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacagancat	480
actctctcca cacctgtaca tagtttcngc ttctacatcc ccaaaccaca ctcgtaaatt	540
tggantgaaa ttctgtcctg taagttcaag cattnctacg tccccaccg ccatttcaac	600
tgaaggctc tctaccacan ggnacaggaa atgactgggg caaggacagg gccatttccc	660
tcattaaatg tnatactccg ctttatcngt cctaaangaa tgnncaa	707

<210> 592  
 <211> 541  
 <212> DNA  
 <213> Homo Sapiens

<400> 592  
 ggtaaacttt tggccacnnc caattcantt taattcctac caaaaaaacg gtatttagn 60  
 tncncctgtg gctgtaaata atttaacnct gggttaaattn ntncctggctt tngtntanct 120  
 cccccccctn ttngtttttn atccnttagg gggcacctgn cttnantngg cncaaaggat 180  
 ngcccctgct gcantgcaat ttggcencgg ccctggctct gggttntagg taaaggtaag 240  
 gcnggtgnaa taantaatcc caccattncg naccaaattt actgnaacct gaacnggttg 300  
 ccgnaccan cncancctn cncgaaatgc aaaantttct ggnacaacnc aaacntacn 360  
 cncnccacc ctntncntat ttncagctnc tacntcccca aaccacacnc ntaaattngn 420  
 attaaatcc tntcctgtaa ttccaagcat ggctacttcc ccaccgccat tcaactnaag 480  
 gccnctacc acaggcncag nattaantgg ggcaaggaaa gggcccatcc cccataaaa 540  
 t 541

<210> 593  
 <211> 605  
 <212> DNA  
 <213> Homo Sapiens

<400> 593  
 actgtggctt ctgcatttca aatcagcact tgcagggana caacgggggtt tttgaatant 60  
 atcacctggt atgaaaagt ttcccaanaa accacaaacn antgttcatt ttnctcctt 120  
 ttttgttaac tttttgccac actcaantca gtttaantcc tagcaaaaaa acggtagtta 180  
 ggataccact gtggctgtaa atgatgtnac actgggtgaa tttgtgctgg cgtttgtgn 240  
 acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tggcttgaat tggctcgaan 300  
 gattgtcct gctgcactgc aaigtggccg cggccctgggt tctggtgtgt aagtaaagg 360  
 aaggctgggt gaataaatga ttccntcatt tcggancaa gttactggaa cctggantgg 420  
 ttgncggacc atctccaacc ttctcggaat gcanaaatgt ctgggacaan acnnaacata 480  
 ctctctcnc acctggttca tantttcagc ttctacatcc cccaaaccac actcntaaat 540  
 ttggantgaa attctgtcct gtttaattcaa acattgtctac gtccccnccg ccattcaact 600  
 gaaag 605

<210> 594  
 <211> 666  
 <212> DNA  
 <213> Homo Sapiens

<400> 594  
 gaagagtgtt tggaagatgg cgcctgttgt gacagggaaa tttggtgagc ggcctccacc 60  
 taaacgactt actaggggaag ctatgcgaaa ttatttataa gagcgagggg atcaaacagt 120  
 acttattctt catgcaaaaag ttgcacagaa gtcatatgga aatgaaaaaa ggtttttttg 180  
 cccacctcct tgtgtatatc ttatgggcag tggatggaag aaaaaaaaag aacaaatgga 240  
 acgcgatgggt tgttctgaac aagagtctca accgtgtgca tttattggga taggaaatag 300  
 tgaccaagaa atgcagcagc taaacttggg aggaagaagc tattgcacag ccaaaacatt 360  
 gtatatatct gactcagaca agcgaaagca cttcatgttg tctgtaaaga tgttctatgg 420  
 caacagtgat gacttggtg ttttccctcan caagcggata aaagtcattt ccaaaccctc 480  
 caaaaagaac agtcattgaa aaatgctgac ttatgcattg cctcaggaac aaaggtggct 540  
 ctgtttaatc gactacgac ccagacagtt ngtaccagat acttgcattg anaaggaggt 600  
 aattttccat gccagtcccc accagtgggg agcctttttt attcncctctt gggatgatga 660  
 tgaatc 666

<210> 595

<211> 600  
 <212> DNA  
 <213> Homo Sapiens

<400> 595  
 gccacactca agtcagttta agtccttagca aaaagacggt agttaggata cactgtggc 60  
 tgtanatgat gtgacactgg ttgaatttgt gctggcggtt gtgtaacttc cctcgctgtt 120  
 tgtgtttgat tcgttagggg gcacctggct tgaattggct cgaaggattg ctctgctgc 180  
 actgcaatgt ggccgcggcc ctggttcttg tgtgtaggta aaggtaaggc tgggtggaata 240  
 aatgattcca tcatttcgga ccaaagttac tggaaacctg actggttgcc ggaccatct 300  
 ccaaccttct cggaatgcag aaatgtctgg gacgacacag ancatactct ctccacacct 360  
 gtacatagtt tcagcttcta catcccaaaa ccacactcgt aaatttggag tgaaattctg 420  
 tcctgtaagt tcaagcattg ctacgtcccc accgccattc aactgaaggc tctctaccac 480  
 aggcacagga atgactgggg caaggacagg gccattccc tncataaaat gtntaatttg 540  
 gggncaaantg tggcccccaa cccccccca aagggcattna tttaacnccn ctttaattgg 600

<210> 596  
 <211> 835  
 <212> DNA  
 <213> Homo Sapiens

<400> 596  
 actgtggctt ctgcatttca aatcagcact tgcagggaga caacgggggt tttgaatagt 60  
 atcacctggt atgaaaagt ttcccaanaa accacaaacn attgttcatt tttctcctt 120  
 ttttgttaac tttttgccac actcaantca gtttaagtcc tagcaaaaaa acggtagtta 180  
 ggataccact gtggctgtaa atnatgtgac actggttgaa tttgtgctgg cgtttgtgta 240  
 acttccctcg ctgttttgtt ttgattcgtt agggggcacc tggcttgaat tggctcgaag 300  
 gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaagg 360  
 aaggctggtg gaataaatga ttccatcatt tcggaccaaa gtactggaa cctggactgg 420  
 ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacanancat 480  
 actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctctgaaatt 540  
 tggagtgaat ttctgtcctg taagtccaag cattgtctac tccccaccgc cattcaactg 600  
 aaggcctcta cacaggcaca ggaatgactg gggcaaggan agggccatt ccctcataaa 660  
 atgtatactc tgccttatct gtgctaataa ttgtccagga aacgccanca ttttaccacc 720  
 tcnttattgg ttcttttggg antggaatgg cctgaaattg aaatattctt ccttgaaaaa 780  
 aggccaaata cntcttctgt ttctttnaag ggtaaaatgc ccatttttgg aattg 835

<210> 597  
 <211> 443  
 <212> DNA  
 <213> Homo Sapiens

<400> 597  
 agcagttcga atgccaggaa actgctcgag tgccagggtg aggtgggggc ccccgaggag 60  
 gaggaggagg agggaggagg cgccggcctg tgggccgagg ccgangecgt ggctgccggc 120  
 tggatgctcg atttctctg cctctctctt tgccgagctt tccgcnacgg ccgctccgag 180  
 gacttcnncn ggaccgcgaa cagecgcanag gctattattc atggactatc cagtctaaca 240  
 gcttgccagt gagaacgata tacatatgtc agtttttgac aagaattgca gcaggaaaaa 300  
 cccttgatgc ncagtttgaa aatgatgaac gaattacacc cttggaatcn gcctgatga 360  
 tttggggttc aattgaaaag gaacatgacn aacttcntga agaaatacag aatttaatta 420  
 aaattcangc tatngctgtt tgt 443

<210> 598  
 <211> 491  
 <212> DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 598

gtactttgag	gagttcctac	tcttctttct	ttcttattaa	ggtcttggtg	ctgggttcca	60
tggtgcaact	tagataanaa	aagattcttg	tgagacctca	ataaggatac	tgtaccctct	120
gaggattcag	ttaccgcaga	ctgtttgta	ctaaccactt	ttcttgatc	caaattagct	180
tcagtttcca	tttcaacatc	attaccacta	ggtttatctt	gagaagttat	tggtcttgct	240
cttttgcttt	ctactacttt	tgccgctgcc	ttcattagaa	aggttgatga	tttttcactt	300
agcacataat	tcacataact	cttaattttc	tccatcatgt	ggttgtagct	gaagtgttga	360
aaaaaggaat	gaaatgtatc	tttctgagan	attatcataa	gcaatttgct	tttgaaaggc	420
atatgagaat	ttggatcacc	aaatattctt	tcaaagactt	cttctgcttc	tttaaagttg	480
ccattttcca	t					491

&lt;210&gt; 599

&lt;211&gt; 802

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 599

gtactttgag	gagttcctac	tcttctttct	ttcttattaa	ggtcttggtg	ctgggttcca	60
tggtgcaact	ttaaataagaa	aagattcttg	tgagacctca	ataaggatac	tgtaccctct	120
gaggattcag	ttaccgcaga	ctgtttgta	ctaaccactt	ttcttgatc	caaattagct	180
tcagtttcca	tttcaacatc	attaccacta	ggtttatctt	gagaagttat	tggtcttgct	240
cttttgcttt	ctactacttt	tgccgctgcc	ttcattagaa	aggttgatga	tttttcactt	300
agcacataat	tcacataact	cttaattttc	tccatcatgt	ggttgtagct	gaagtgttga	360
aaaaaggaat	gaaatgtatc	tttctgagag	attatcataa	gcaatttgct	tttgaaaggc	420
atatgagaat	ttggatcacc	aaatattctt	tcaaagactt	cttctgcttc	tttaaagttg	480
ccattttcca	tacaaacagc	tatagcctga	attttaatta	aattctgtat	ttcttcatga	540
agtttgctcat	gttccttttc	aattgaaccc	caaatcatca	gggttgattc	caanggtgta	600
attcggtcat	cattttcaaa	ctgtgcatca	agggtttttc	ctgtgcaat	tcttgcaaaa	660
aactgacata	tgtntatcgt	tctcaactgg	cnagcctgtt	aaactggaaa	atccatgaat	720
aataacctct	ggcgctgttg	cgggtcctgc	ggaaattccn	cggaaaccggc	cgtcncggaa	780
aactcngcaa	aagaaaaaaa	gc				802

&lt;210&gt; 600

&lt;211&gt; 523

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 600

gaaaagcaac	ttttattgaa	naatttggag	ggaagggttc	atattatatt	ataatagtaa	60
aaatactaaa	gttgaatgtt	gtaaaaaac	nccgtggtgc	agcggcagcg	gcagcgtctg	120
gccaggaggc	gtggaggggc	ccagggatgg	ccacccccac	agggagtcag	ggagggcctg	180
gggcgacagc	ggaaagggtta	agcgtcnaaa	aggtcaagtg	ctaccgtgga	naaatcatct	240
gagggggagg	ctcccgggtg	gacagtcacc	aanaactgtn	acacacaagg	ggaaggggga	300
gggctttcct	gtcacaaana	ttaaaaaccc	ccnaaatgca	tttgaacaac	atnatacacn	360
ataacaaatt	taaaccttgc	tcctctgtcc	cactgggtna	accctggccc	atccccatc	420
cctggtccca	tcccaggggc	ccagcctccg	atnactcctc	anaaacacng	ccttnntgct	480
ggggggctgc	tgtnnccctg	ccacccccnn	gaaaagggtgc	tgg		523

&lt;210&gt; 601

&lt;211&gt; 530

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens



<400> 601  
 aaaaccaact tttattgaaa aatttggagg gaaggtncca tnttatntta taatantaaa 60  
 aatactaaat ttaaattttt taaaaaaacc cntgntgca ccggcancgg cancttctgg 120  
 ccaaaangct tnaaggggcc cagggatngc cnccccncga gggattcngg gagggcctgg 180  
 ggcaanancg naaagggttaa cntcnaaaaa ggtcaattnc taccgtgnaa aaatnatctn 240  
 aggggggancg tcccgggtggg aactccccn aaaactntna cccaaaaggg gaagggggag 300  
 ggctttcctn tnncaaaaat tnaaancccc cnaaatgcct ttnaacnact ttntnccan 360  
 tnncaatttt naaccttgcn cctctntccc actgggtnaa ccttggecca tccccatcc 420  
 ctggtccent ccngggggcc cccccccna taacttctc aaaaaccngc cttnttctg 480  
 gggggctgct nttttcttcc ccccccaana aaaggtntcg gccccctcc 530

<210> 602  
 <211> 311  
 <212> DNA  
 <213> Homo Sapiens

<400> 602  
 gccnancagg nanccgcgc tgaagccacc gccgggtgcc cagcgccgcc gccgccccg 60  
 agctccccg cgccccctgcc cncgggcggn cgggtggcac cgggcgccat ggccgcgccg 120  
 ggancgcctg cggntnccgn tgtgccttt ggtgcncgga anancanggc tacngttct 180  
 acctntactg gtgananngg ccgcgcggg cacttcttcc ggcgcgtgna ncctctgttc 240  
 cccgcgcgag gcngccgcgc tgtgctctgg ggatctnctg ntcnaggtca acntgcntca 300  
 acgtgnaggg c 311

<210> 603  
 <211> 289  
 <212> DNA  
 <213> Homo Sapiens

<400> 603  
 gcanagaaag gtttgtttta ttgcaattat ttaaactncg tcccangggg gaggggaagg 60  
 gggangggaa ggggggggtg tctggnttn attngatncc tgtctgcca ctttnacatc 120  
 tatnangaan anaaccatca ncnncntcc ctttcantca tctggcncct gcanaccatc 180  
 ttctgcctc tncccccgc tgetctccna ctccentgac cnetctcatc tctctccnct 240  
 ctgnctctc nctctntctc tcatttctct gtnacnct ctctcccc 289

<210> 604  
 <211> 356  
 <212> DNA  
 <213> Homo Sapiens

<400> 604  
 ctgaagccac cgccgggtgc ccagcgccgc cgccgcccc gagctcccc gcgccccctgc 60  
 ccgcggggcg ccggtgggca tcgggcgcca tggccgcnc ccgancgctg cgccgcgcc 120  
 tgtgcgcctt ggtgcgcgga naggcangct acggcttcca cctgcacggt gagaanggcc 180  
 gccgcgggca ntcatcccg cgctggaac ccggttcccc cgccgaggcc nccgcncctgc 240  
 gcgctgggga ccgcntgntc naggtnacn gcgtcaacnt ggaggcgat accacncct 300  
 ngtgntgcnt acgatchang ctgtngangg gcanactcgg ctgctggtgg tggacc 356

<210> 605  
 <211> 290  
 <212> DNA  
 <213> Homo Sapiens

<400> 605

gcaaagaang gtttgtntta ttgcaattat ttanagcgcg tcccaagggg gaggggangg	60
gggangggaa ggggggggtn tcttgctana aactggaaac ntgtttctta ccccnatntc	120
nnantcgact nccaccaact gtnnntcttc ctctctttcc cnangtcctt anntaccncc	180
tnttgcctt ctncctcttn tttccctctn cgctttccct nactctttat ctntctntc	240
ctctctctct ctcacctctt tctccctctc ccttcacnct cacnttgct	290

&lt;210&gt; 606

&lt;211&gt; 714

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 606

cgccagaaaa agttatttta attttctatt aaacattctt ctcaaagcat tattttatcc	60
tatatctcac tgaattttaa gaaataacat tagtattaga aaaactagga aaaaagataa	120
atgcagataa ttaaccttac atgaaaaagg aaaattataa caaaggactg agaacgttat	180
aaattgaaat gagattataa tttgaaaact gcacttgaaa gcaaacttta ttgttcaatt	240
atncttaatg atggtgtttt atgactaata cactgatttt tcaagaagga aacctatgtt	300
aaaaatattt ttattttaaa aataagcctg tgttcaagct ctgatcatat ttcttttatt	360
ttgatttggg aaaaaaacat tgtttctgat agcatgaaat gcaaaatttt tagattttta	420
atctcactaa ttttaanaac tattgagaaa ttgattaatg acatgaagtg cacaacacta	480
attactggcc agctgttggc attgtgttcc ttacttagtt ctcccaaggg aaaactctta	540
aattgaatct tcagcagaat aatccttaaa tatactttgt aagcaaaaca aaagcttttt	600
tgtttacata gttctttggg attttactgt tcctaatttt attctgaaac tcaattttac	660
cccagaccat aattaccata ttaactttgt tntgcacagt tgtttgcaa ttca	714

&lt;210&gt; 607

&lt;211&gt; 687

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 607

attttaattt tctattaaac attcttctca aagcattatt ttatcctata tctcactgaa	60
ttttaaaaa taacattagt attagaaaaa ctaggaaaaa agatnaatgc agataattaa	120
acttacatga aaaaggaaaa ttataacaaa ggactgagaa cgttataaat tgaaatgaga	180
ttataatttg aaaactgcat ctgaaagcaa actttattgt tcaattatct ttaatgatgg	240
tgttttatga ctaatacact gatttttcaa taaggaaacc catgttaaaa atatttttat	300
tttaaaaaata agcctgtgtt caagctctga tcatatttct tttattttga tttgggaaga	360
aaatactgtt tctgatagca tgaaatgcaa aatttttaga tttttaatct cnctaatttt	420
aagaactatt gagaaattga ttaatgacat gaagtgcaca aactaatta ctggccagct	480
gttggcattg tgtttcttac ttagtctctc caaggaaaac tcttaaaactg aatcttcagc	540
ngaataacct taaatatact ttgttagcca aacaaaactt ttttgtttac atagttcttt	600
ggattttact gttcctaatt ttattctgaa actccatttt tccccagacc ataattaccc	660
tatttaactt tgttatgcac agttgtt	687

&lt;210&gt; 608

&lt;211&gt; 994

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 608

ctcaccagct tgctctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg	60
gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata	120
acccttatct ccagttccaa gatgaatata gttagatga agtgatggca tctaaagaag	180
tttttgattt tttgactatc ttacaatgtt gtcccacttc agatggtgct gcagcagcaa	240
ttttggccag tgaagcattt gtacagaagt atggcctgca atccaaagct gtggaaattt	300

tggcacaaga	aatgatgact	gatttgccaa	gctcgtttga	agaaaaaagc	attattaaaa	360
tggttggctt	tgatatgagt	aaagaagctg	caagaaaatg	ctatgagaaa	tctggcctga	420
caccaaatga	tattgacgta	atagaacttc	acgattgctt	ttctaccaac	gaactcctta	480
cttatgaagc	actgggactc	tgtccagaag	gacaagggtg	aacgctggtt	gatagaggag	540
ataatacata	tgagggaaa	tggttcataa	atcctagtgg	tggaactgatt	tcaaagggac	600
accactagg	cgctacaggt	cttgctcagt	gtgcagaact	ctgctggcag	ctgagagggg	660
aagccgaaa	agaggcaaag	ttcctggtgc	aaagggtggc	ctgcngcata	atttangcat	720
tggaaggaact	gtggttgtaa	cactctacaa	gatgggggtt	tcccgggaagc	cgccagttcc	780
ttttagaact	catcaaaatt	gaagccngtt	ccaaccaagc	tctgcaagtn	atnggtttta	840
ngnaaaatct	ngtttttaaag	gnngattgag	aaggaaacnt	naaagaggga	anggggaaca	900
atgttgtaaa	gaaaaatncg	gnnggaattt	ttgccttcca	aggggaaana	atggccctgg	960
ggggtaaaa	anggccaccc	tggggtggtg	ggat			994

&lt;210&gt; 609

&lt;211&gt; 843

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 609

ggccaaaaaa	anttatttna	atttcctatt	aanentcctc	cncaaanat	tatttnaccc	60
tatnncncnc	ngantttnan	aaantacctt	tnntnttaaa	aaacctngga	aaaaaaataa	120
tngcaaatan	ttaaccttnc	ttgaaaangg	aaatttntac	caanggacng	aaancntnt	180
aattngaant	naaattatan	ttngaaaang	gcnnngaaa	ccaancttna	tggtccaatt	240
atcctnaang	agggnttttn	annactaatn	cccngatttt	ccaatangga	ancccnntt	300
aaaantnttt	tnatttttaa	aataaccnng	tncccaaccc	cngatcanat	tccttttatt	360
tggtattggg	aaaaaaatnc	ngttccnnt	accnngaann	gcaaantttt	taaattttta	420
acccccctan	ttttaaaanc	tatngaaaan	tngattanng	acttgaattg	ccaaccctan	480
ttncnggcca	cngtgggcn	tngtnttcc	tacttantcc	ccccaaggaa	annccctaan	540
cngaantccc	nccaaaataa	cccttaanta	tccttggtta	ccaaancaaa	acctttttng	600
tttaacntant	ccttgggatt	taacgggtcc	ccaatttnat	cnngaaccce	nttttcccc	660
naaccatant	taccatttta	ccttggttaag	gcncagtngt	ttgcantncc	gcaaancagt	720
antnttcccc	nggcnccttc	ccccgancct	tggaagaaaac	gggatnggtc	cccccttaa	780
aaaacaacct	ccccccnct	ttggcccagg	nntnttcccc	gtctaaatcc	gaacaataaa	840
aag						843

&lt;210&gt; 610

&lt;211&gt; 707

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 610

ctagtctcga	gttttttttt	ttttttttta	cctttcctta	tgagcatgcc	tgtgttgggt	60
tgacagtggg	ggaataatg	acttggtggg	tgattgtana	tattgggctg	ttattgttca	120
gttcagtgtt	ttaatctgac	gcaggcttat	gcggaggana	atgttttcat	gttacttata	180
ctaacattag	ttcttctata	gggtgataga	ttggtccaat	tggtgtgag	gagttcagtt	240
atatgtttgg	gatttttttag	gtantgggtg	ttgagcttga	acgctttctt	aattgggtggc	300
tgcttttagg	cctactatgg	gtgttaaatt	ttttactctc	tctacaagg	tttttcttag	360
tgtccaaaan	gctgttcttc	tttgacttaa	cagttaaatt	tacaagggga	tttagagggg	420
tctgtgggca	aatttaaagt	tgaactaaga	ttctatcttg	gacaaccagc	tatcaccagg	480
ctcggtagg	ttgtgccttc	tacctataaa	tcttccctac	attttgctac	atagacgggg	540
tgtgtctttt	tanctgttct	tangtanctc	gtctggtttc	gggggtctta	gctttggctc	600
tccttgcaaa	gttattttct	agttnaattc	attatgcnc	angtatagg	gttagtcctt	660
gctcatatta	tgcttggtta	taattttcca	nctttccctt	tgcggtta		707

&lt;210&gt; 611

<211> 663  
 <212> DNA  
 <213> Homo Sapiens

<400> 611  
 ccattttata atgcgcttta ttgattaaa gaatttgctt tctttgtata cactggaatg 60  
 ttatatccct tatgtatttt acagggttac aaaatgtctc tcattttaaa tattacccca 120  
 aaagtaatct canaaaaaaa aggttttttg aaattaaact tgacttttaa aaaatcatac 180  
 ggacaaacaa ttttcaaaca aaactggatt agtaggattt cttgcctgct taactaacat 240  
 gacanaacttc ttgtcccagg cccttctcan aaaaacctca tgtggaaacc aagctanaga 300  
 taanaattct tccctgatgc agttagggga aagggaaagg ctagaaactt ctttggcaag 360  
 caattccaca cacagccatt tatgtgtgag tgctctgctt caagcacagt acgctctttg 420  
 cagggacggc cagatgttca gagtgggagt ggtacttttc aaccagctaa aagtgcagaa 480  
 gtcacttant cgtctgcctc tccactgc cagtgcctgc agccttgca caacttttaa 540  
 ccaccccta tgggactgga atnttgagtt aaaaagccaa ngctgaactg gctgacgctg 600  
 tantctocan tgaaaaggaa atgggatgaa atggaaaccg aaaaaccccc ngtnacntga 660  
 tga 663

<210> 612  
 <211> 621  
 <212> DNA  
 <213> Homo Sapiens

<400> 612  
 cattttataa tgcgctttat ttgattaaag aatttgctt ctttgtatac actggaatgt 60  
 tatattccct atgtatttta cagggttaca aaatgtctct cattttaaat attaccccaa 120  
 aagtaatctc anaaaaaaa gggtttttga aattaaactt gacttttaaa aaatcatac 180  
 gacaaacac tttcaaaca aactggatta gtaggatttc ttgcctgctt aactaacatg 240  
 acaaacttct tgtcccaggc ccttctcana aaaaacctcat gtggaaacca agctar.anat 300  
 aanaattctt ccctgatgca gttaggggaa agggaaaggc tagaaacttc tttggcaagc 360  
 aattccacnc acagccattt atgtgtgagt gctctgcttc aagcacanta cgctctttgc 420  
 agggacggcc anatgttcnn antgggagt gtagttttca accagctaaa antgcanaag 480  
 tcatctantc gtctgcctct tccactgcc agttgcctgc agccttgca catcttttaa 540  
 ccacccctat nggactggaa tattgaatta taaaccngg ntgaactggc tgangctgtt 600  
 tctcccttga aaaggaaatg g 621

<210> 613  
 <211> 637  
 <212> DNA  
 <213> Homo Sapiens

<400> 613  
 catttnataa tgcgctttat ntgattaaan aatnngcctt ctttgtatac gcnggattgt 60  
 tatctccct ntntatttnn gggggttaca antntnct catttnaant atnccccaa 120  
 tantntnctn aaaaaaaaga gggttganga aattaaactt gacttttaaa anatcatgng 180  
 gacaaacnac tttcaaaca agctggatta gnaggatttc tngnctgctt aactaacatn 240  
 aanacttct tgtcccaggc cctnctnaaa aaaacctctt gtggaaaccn agcnaaaaat 300  
 aananttctc ccctgatgca ntggggggag anggagaggc taaaaaacttc tntggcaanc 360  
 anttccacnc acngccattt ttntntnagt gcnctgctnc nancnnagta cgctctttgg 420  
 gnggacggcn anntntnat agnnggagt gtnctttcaa ccagctaata ntgaagaaat 480  
 catctagtgc nctgcctctn cccactgcca gtgcctgcnt ccttgcaacn tcttttaacc 540  
 cccctangg acnggattat nnagttaana ccgaggntga gctggntgac gctntctcct 600  
 ccatttgaaa angaaatgga taagatggaa ccgaaaa 637

<210> 614

<211> 673  
 <212> DNA  
 <213> Homo Sapiens

<400> 614  
 agattatgcc attgaggcta agaataagagt catttttgat ctaatttatg aatacgaag 60  
 aaagagatat gaagatcttc ctataaatag caatccagtg tcttctcaga aacaaccagc 120  
 cttgaaggct acaagtggca aggaagattc tatttcaa atagccacag aaataaagga 180  
 tggacaaaaa tctgggacag tgtcttctca gaaacaaccg gccttgaagg atacaagtga 240  
 caaggatgat tctgtttcga acacagccac agaaataaaa gatgaacaaa aatctgggac 300  
 agtgcttctt gctgttgaac agtgtttaaa caggagtctc tacagacctg atgctgttgc 360  
 acagcctgtg acagagaatg agttttcttt ggaatctgag attatttcaa aactatacat 420  
 cccaaagaga aagattatct ctccacgacg tataaaagat gtgcttcctc ctgttgaaga 480  
 ggctgttgac aggtgtctct acctactgga ccgttttgca cagcctgtga caaagggata 540  
 agtttgcttt ggaatctgag aatatttcag aaccatactt tacgaacaga aggactattc 600  
 tcaacaatct gcagaaaatt tagatgctgc atgtggcatt gacaaaacag aaaatggana 660  
 catgtttgaa gac 673

<210> 615  
 <211> 714  
 <212> DNA  
 <213> Homo Sapiens

<400> 615  
 cctctggcta tattcaaaac agaatctttc tcatcacttg aagccttcaa gcctggtggt 60  
 ttctcanaan aactgttctt agatctttct ccaccttctg tttctctggc tatacccaaa 120  
 acagaatctt cctcgtcact tgtacccttc aagggtggtg gttcttgana anacactttc 180  
 ctanatatct cctccatcctt tttctctctg gttatatctg aaaaanaatc cttctcatca 240  
 ctgtagcct tcgaggctgg ttttttccg naagacactg tcctanattt ttctccatcc 300  
 ttgttttctc tggctatact caaaacagaa ccttctcgt cacttgatc cgtcaaggct 360  
 ggtggtttct ganaanacac tgtcccanat tttctccat cctttatttc tgtggctatg 420  
 ttcgaaacag aatctttctc atcagttgta gccttcaagg ntggttgttt ctgaaanan 480  
 ctgtccana tttttctcca tcttttattt ctgtggctat ntgcgaaaca gaatcttctt 540  
 cgtcagttgt accttcnagg ntggttgttt ctgaaaaaan actgtccac actgtatcca 600  
 tctttttatt tntgttanct atatcnaagc aaaatctgtt ttgtcccttg ttacntttg 660  
 aaggtnngtn gtttctgaaa aataanctgt tccanatttt cccaccacc attt 714

<210> 616  
 <211> 688  
 <212> DNA  
 <213> Homo Sapiens

<400> 616  
 cctctggcta tattcaaaac agaatctttc tctcacttg tagccttcaa gcctgatggt 60  
 ttctcanaan aactgttctt anatttttct ccacctttt tttctctggc tatattcaaa 120  
 acanaatctt cctcgtcacc tgtagccttc aaggctggtg gtttctgaaa anacactgtc 180  
 ctanagtgtt cctccatcctt tctttctctg gttatatctg aaaaanaatc tttctcatca 240  
 cttgtagcct tcaaggctgc ttttttccga naanacactt caagcctggt ggttgcctctg 300  
 aaaacactgt tctaaatttt tctccatcct ttttttctt ggctatatctc aaaacanaat 360  
 cttcctcgtc actgttagcc ttcaaggctg gtggtttctg aaaananact gtcctanagt 420  
 tttctccatc ctttctttct ctggttatat ttgaaaaana atctttctca tcaattgtan 480  
 ccttcaagggt tgcctttttc cganaaaaaa cttcaagcct ggtggttgc cngaaaaaac 540  
 tgtcctaaaa tttttctcca tcttttctt ctctnggcta tactcnaaac aaaatcntcc 600  
 tctgctcttg ttnccttcca anggtgggtg gtttctcgaa aaaaanactg tctanaatt 660  
 ttctctcctc cctttttttc tctgggtt 688

<210> 617  
 <211> 721  
 <212> DNA  
 <213> Homo Sapiens

<400> 617  
 ttcgggcttc cacctcattt ttttcgcttt gccattctg tttcagccag tcgccaagaa 60  
 tcatgaaagt cgccagtggc agcaccgcca ccgcgcgcgc gggccccagc tgcgcgtga 120  
 aggccggcaa gacagcgagc ggtgcgggcg aggtggtgcg ctgtctgtct gagcagagcg 180  
 tggccatctc gcgctgcgcc gggggcgccg gggcgcgccct gcctgccctg ctggacgagc 240  
 agcaggtaaa cgtgctgctc tacnacatga acggtctgta ctacgcctc aaggagctgg 300  
 tgcccaccct gccccagaac cgcaagggtga gcaagggtga gattctccag cacgtcatcg 360  
 actacatcag ggaccttcag ttggagctga actcggaatc cgaagtggga acccccgggg 420  
 gccgagggct gccggtccgg gctccgctca gcacctcaa cggcgagatc agcgccctga 480  
 cggccgangt gagatccaga tccgaccact anactatcct tataccgacg gggaaacnga 540  
 agccatanaa ggcggtggcg cttgcaccac ttccgtccca tccttgccgg tacctggctc 600  
 atgcnngggg ncctaaggac cttggaaaaa acgctccccc gtcgttgcct cctggggaaan 660  
 ggggcgttnc gctgcgcttc ggaacggggg tccttccaac ccgcgcgtct cattttcttc 720  
 c 721

<210> 618  
 <211> 461  
 <212> DNA  
 <213> Homo Sapiens

<400> 618  
 ccaccancta anttattnt ttaataacaa aaaaacanc ccacaaaact atngtaaaac 60  
 aatatttcca ntcggtnatc ntngtattnt acaatacaaa ncanttccn caaaattctn 120  
 aaaancacca ancttnacca ttttttaaan tttctgcttt ncaaaaaanta aaaacncna 180  
 attgnantcc cacccectaa attctctggt nactattagg tntncaaaaa gnaccnccn 240  
 ctccnccca ttgcctcanc cncancccca ggctgnatnc atttaagggc ncattggccg 300  
 ccaatcggnc tnntcncnc ncaaatccgg caaggcnctt nggggnaaaac ccacaaanca 360  
 cttattcccc ctngcccccet gaattggtgg ggtccgccgg tccttggggg aggcnetcca 420  
 ccaacncaaa atgcaatcnt cncagnaac cnttgcgcgc t 461

<210> 619  
 <211> 751  
 <212> DNA  
 <213> Homo Sapiens

<400> 619  
 cccgagggac cacagctggc agctccgggg atgccctcgg caaagcactg gcctcgatct 60  
 actccccgga tcaactcaagc aataacttct cgtccagccc ttctaccccc gtgggctccc 120  
 cccagggcct ggcaggaacg tcacagtggc ctgcagcagg agccccgggt gccttatcgc 180  
 ccatctacga cgggggtctc cacggcctgc agagtaagat agaagaccac ctggacgang 240  
 ccattccagt gctccgcagc cacnccgtgg gcacagccgg cgacatgcac acgctgctgc 300  
 ctggccacgg ggcgctggcc tcaggtttca ccggcccat gtcactgggc gggcggcacg 360  
 caggcctggt tggaggcagc caccocgagg acggcctcgc aggcagcacc agcctcatgc 420  
 acaaccacgc gggccctccc agccagccag gcacctccc tgacctgtct cggcctcccg 480  
 actcctacag tgggctaggg cgancaggtg ccacngcggc cgccancgag atcaagcggg 540  
 aagagaagga ngacgangag aacacgtcag cggtganca ctcggaagaa ganaanaagg 600  
 aactgaaggc ccccgggccc ggaccattac ggaacaagt ctgtcccttg naggagaaaa 660  
 actgaaggac cgggaaaagg cncatggcaa ttacncccc ggaaccggtg cccttccggg 720  
 atattaacna aggttccgg gaactggggg c 751

<210> 620  
 <211> 556  
 <212> DNA  
 <213> Homo Sapiens

<400> 620  
 aatacaacgt ttaatcatct ggttgatcaa aaaatgcaat gctcagtcta ggaacagcag 60  
 caaaaatagc ganagacacg ggacttttat acaaaaaaat ttgttgctta caaaacatat 120  
 gcaaaaaaag cttaaaaaaa ccaaaaacca aaggcagcat ccttgctaata tttcatctac 180  
 attaanaaaa aaaaaatctt gtaactaatg tttttatttn ccttaaaaaa aatatttcgc 240  
 ttaggcacaa tttgctggtg gctttaaaaa aataagccag gtttccacag catccccctt 300  
 gagtgatatn tttccatttc tccgcttttt atagttaagg cattttttnc tnccttgaca 360  
 aagtgtatgt tttgttgctt gctttcaggt tttgtttact ggaaaaaaa aaaaatgccc 420  
 tgtcanccca ngcaanaggg ccaanatgca attcagggat ccntgggaca ggtccaaaat 480  
 gacccggggg ctgaaattcc gggacggggg aacaaggcnn tttaatngta ggccagggcc 540  
 canggaacc tgaacc 556

<210> 621  
 <211> 708  
 <212> DNA  
 <213> Homo Sapiens

<400> 621  
 ccacttnaat tcctttatnc ancaatatta tccnaaaagg aaaaatcagg atttacaaaa 60  
 acaatttaan tgcaatataa aaccctacta aatacaata caattncaca aacnctatg 120  
 caacaaaaac ttgtttaaat ngttccttna atttnnacta cttaaaanca taggtntaaa 180  
 ggaaaaacnt ncaaactggt ccacttgggc ttnttaccag gcaaagnaac cctgcttncc 240  
 aaaaactnat atattccaaa ttcncggcat ntggnaatnt tnccatggac nctgnatctt 300  
 aacaaatgct atantnttta caaaactacn cccncaaaaa aaccccaagg aacctgcagg 360  
 ctaancccta tnccttttaa gggctnaagg aaccaaactt attttaancc tnttngtttg 420  
 cnccatgcaa aactttatgn aaaaccccca aactaggcta tttancnct nccatnaatg 480  
 gnccccaaat catntnatnc tacggcataa acaacanctg ccctatttac ncggaacctg 540  
 caaanctcac aagnaatgtg aattngcnct ngggantcaa tgttnccggg tnaattatct 600  
 tggatnanaa ccnttttcta catnactatt gaaaaaacct gtggtttctt gctttttaac 660  
 aaatnnggtg ttcctttgcc cccccccctt atttttcaag ggtggtgt 708

<210> 622  
 <211> 675  
 <212> DNA  
 <213> Homo Sapiens

<400> 622  
 atcacagtcc agagagtcct agaggaggac gagagcataa gancttgctt tagtgaagat 60  
 gcaaaagaga ttcagaacan aatagaggta gaagcagatg ggcnaacaga agagattttg 120  
 gatttctcaa acttaaattc aagaaggagc cctgtcccag ctcaaatagc tataactgta 180  
 ccaaaagacnt ggaagaaacc aaaagatcgg acccgancca ctgaagagat gttagaggca 240  
 gaattggagc ttanagctga agaggagctt tccattgaca aagtacttga atctgancaa 300  
 gatntaatga gccagggggt tcatcctgaa agagaccct ctgacctana aaaagtga 360  
 gctgtggaag aaantggaga anaagctgag ccagtnctg ntgggtgctga gagtgtctct 420  
 gaggggtgaag gantagatgc tacttcaggc tccncagata gttctggtga tgggggttacn 480  
 tntccatttn aaccngaate ctggaagcct actgatnctg aaggtnctgan gcnnntgtac 540  
 ngggagttct gctggacttc cagttcatgc ctgcttggtg tncctttccc gagggcctgc 600  
 ctctntcag tgatttggtt cttgacaaga tccnccntcc cccttttgcc aatgccgaac 660  
 tctgggatcc ttcga 675

<210> 623  
 <211> 713  
 <212> DNA  
 <213> Homo Sapiens

<400> 623  
 gctaaacatt tttttaagta tgagtccttg tttaaaaaga aaagattaaa acagaaaata 60  
 ttttctataa ataatacatg tatttttggtt ttagtgctcc cgccctaagg tttgaagttt 120  
 acttttatcc agtacctttt tcctccatga tcacctttt tttcttttcc cctctccac 180  
 tcgtgcacac gtgggggttt ctgcgagaat tggccttgct gcactgtgat tggcgaanac 240  
 gtgaaacttt ttaaaaaaat acttaaatg tttcttttgt ttcattttgt gtatttgaag 300  
 ttttagttat cctcagactc ctcttctgct tcccgcagcc acgtgaagaa tgccgtgaca 360  
 gatttcagag ccacgccctt cccattctgc tctgcagggt ccttgctgct ctcccatttg 420  
 tagaaggcat cctcggagat cacctcctcg tcatatagac aatcaaaaaa catccgcagc 480  
 aaattggcag gttgatcaag ttttactatc gatgcttgta gtgcataaag tgctgcagtt 540  
 ccttctctgt atctgantct aggtacttga gtaagatcgg cactctctgc ttgataacag 600  
 cagtgtccac tctgaaggta naagaatcng gttattatag cttgctttta caaacagcng 660  
 tcnttaaagc tctaaggaat gttangtgaa atncaactgga tttcgtctaa att 713

<210> 624  
 <211> 554  
 <212> DNA  
 <213> Homo Sapiens

<400> 624  
 cattcnagaa agatnttaca cacggagttt nctcantatt gggctcaacg ggaagctgac 60  
 tttacggana ctctgcttca agtaacgana gatattanaa ganaatgctg gancgtcgtt 120  
 tggtatctt cnaggatttg gttggtaaat gtgaccctcg agaanaagca gcgaaagaca 180  
 tttntgccac caaagttgaa actgaagaag ctactgcttg ttttagacta actttnatcc 240  
 aattaaagct gaattagcta aaaccaatgg agaattaatc tcnaccncnc acnanttcnc 300  
 ccagaganaa natgaatccg attcattgat tcaagagctt gagacatctg ntaaganaat 360  
 aattnccan aatctggaga attnnagaat tgatnaatat nattgatcnn tcgaagatac 420  
 tatcancgaa tttcagaacc tnangtctca tatggaaaac tcntttaaat gcnatgacaa 480  
 ggctgataca tcttctttta taataaaca taaattgatt tgttatgaaa cagttgaagt 540  
 acctaaggga cagc 554

<210> 625  
 <211> 551  
 <212> DNA  
 <213> Homo Sapiens

<400> 625  
 gactgcatgt tctcatttat ttatgggac taaaaataaa atcaattgac ctcatgggca 60  
 tacanantaa aaaaatgggt accagtggtt ggtaagggtg ctgacgggtg cagggggagg 120  
 tggggatggt taatgggtac aaaaacaaat aagatnaaaa gaatgattta atatctgata 180  
 gcacaatana ntgactataa tcaataataa cttacttgta tttttttaa tgatctaaaa 240  
 aatgtaattg gattatctgt aattcaaagg aaaaatgctt gaggggatgg atacctcatt 300  
 ctccatgata cagtnnttcc acattgatgc ctgtgtcaaa acatctcaca taccctgtaa 360  
 atatatacat gtactatgta ccacaaaatg tttacaaaat aagtganaca ttctaattaa 420  
 agactgaaat ctttttctaa ataattgata tacatgtttt gtgatctgta cacacttatt 480  
 ctccaaatcc taactntant cccaacanat atnttaaate cttgtttanc ngaataagtt 540  
 aaaaaaatcc t 551

<210> 626  
 <211> 680



&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 626

atttggtaac	aggattaaaa	agaaatTTTT	aattccttgt	ctctcttctg	atggctgaac	60
agaactgcgg	tgtcaaatgg	aaagcagcac	acaagaattc	ccttgacagac	cttgatcttt	120
cgcanaaatg	caaagacgcc	tgagttatac	aacttgcaat	tattattttc	tanacagaag	180
tgccaactgt	tgtgctttcc	agtgtatcag	tggttgctac	attctccttc	ttgtcttcgg	240
gtttcatggc	aggaaacaga	agtacttcct	tgatgttggt	ggagtccgtg	agaaacatgg	300
cgactcgatc	aatgcccatg	ccccagccag	ctgtgggggg	cagcccatat	tccagggcag	360
tacagaagtt	ttcatctatg	aacatggcct	catcatcacc	tgacgccttg	gccttggcct	420
gttcttcaaa	aanctgccgc	tgccgcatgg	gatcattcag	ctcagtatac	gcattgcata	480
tctcttttct	catgacaaac	agctcaaaac	gctcagtcag	acctctttaa	ancggtgcc	540
tttaaccnaa	gggccattat	ctgtgggtga	tcacagatga	atgtnggatt	gatgcaagtc	600
acttccanga	actcccaaac	aancttggtc	aggaacctgg	ctgtgggtcca	angtgaaggg	660
catccacanc	ttttgcccc					680

&lt;210&gt; 627

&lt;211&gt; 753

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 627

acaaatatga	acgtctgaag	gcaaaccagg	tagctactgg	cattcggtac	aatgaaagga	60
aaggaagggtc	tgaactaatt	gtcgtggaan	aaggaagtga	accctcagaa	cttataaagg	120
tcttagggga	aaagccagag	cttccagatg	gaggtgatga	tgatgacatt	atancagaca	180
taagtaacag	gaaaatggct	aaactataca	tggtttcaga	tgcaagtggc	tccatgagag	240
tgactgtggt	ggcanaagaa	aaccccttct	cantggcaat	gctgctgtct	gaagaatgct	300
ttatttttga	ccacggggct	gccaacacaa	ttttcgatg	gaaaggtaaa	gatgctaate	360
cccaagagag	gaaggctgca	atgaagacag	ctgaagaatt	tctacagcaa	atgaattatt	420
ccaagaatac	ccaaattcaa	gttcttccag	aaggaggtga	aacaccaatc	ttcaaacagt	480
tttttaagga	ctggagagat	naacgatcag	agtgatggct	tcgggaaagt	ttatgtcaca	540
gagaaagtgg	ctcaantnna	acnaattccc	tttgatgcct	cnnaattacn	cagttctccg	600
cagatggcag	cccagcacia	tatgggtgat	gatggttctg	gccaagtggg	aatttggcgt	660
gtncaaaaca	atggtaggat	ccaagttgac	cnnaactcct	atgggtgactc	ccatgggtgg	720
gactgctact	tcatactcta	cacctatccc	tga			753

&lt;210&gt; 628

&lt;211&gt; 675

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 628

gggtgtttcca	aaggctttta	ataagggttaa	aaaaaaaaata	aaatnccnct	taaaaaataa	60
cncttanncan	ttaatgacat	caaantcncn	ttgactaaaa	aaggaaaata	ncaaccaatt	120
gttaaancca	ccttaacata	aaccttatng	caattntaca	cntcttttga	acncaatcta	180
taaaaaaaaa	aataactncc	anggcattac	aacttttnct	ctggcatntt	aaaaaacaac	240
tctnactaat	ggctaatagca	ttataaaatt	ncctatctna	caaactctnc	taaaattatgc	300
atagtatttt	acttttnaaa	ggctntaaaa	aaaatataaa	tcanttncca	taaaanctaa	360
tatnggcccc	taacaaaant	tcctncagg	ttattttaat	ntnttaacnt	aaaaaaacnc	420
cagntgaaaa	aaaattncaa	nccaaaacta	accnttaaaa	aataggcntt	nggttnaggt	480
taattttttt	tttttttttt	ttgnaaanaa	antcncntnt	gccagncctg	gattgtgggtg	540
gnccaatcc	tggtcactg	caacctcagc	ctcctggggt	caagcaatnt	ncctgtctca	600
gccttccaan	ttcnggggaa	tacaggggtn	cnccaccacn	cccagctaaa	ttttttttgt	660
tttttttant	aaaag					675

<210> 629  
 <211> 677  
 <212> DNA  
 <213> Homo Sapiens

<400> 629  
 aagatcagcg ataccacgcg tcccccgag catcgcggtgc aggagccatg gcgcggggagc 60  
 tataccacga agagttcgcc cggggcgggca agcaggcgagg gctgcaggtc tggaggattg 120  
 agaagctgga gctgggtgcc gtgccccaga gcgctcacgg cgacttctac gtcggggatg 180  
 cctacctggt gctgcacacg gccaaagacga gccgaggctt cacctaccac ctgcacttct 240  
 ggctcggaaa ggagtgttcc caggatgaaa gcacagctgc tgccatcttc actgttcaga 300  
 tggatgacta tttgggtggc aagccagtgc agaatagaga acttcaagga tatgagtcta 360  
 atgactttgt tagctatttc aaaggcggtc tgaaatacaa ggctggaggc gtggcatctg 420  
 gattaaatca tgttcttacg aacgacctga cagccaagan gctcctacat gtgaagggtc 480  
 gtanagtggg gagagccaca gaattccctc tagctgggac agtttcaaca agggtgactg 540  
 cttcatcatt gacctggga ccgaaattta tcanttggtg tggttcctcn tgcaacaaat 600  
 atgaacgtct gaaggcaaac cangtancta ctggcattcg gtncaatgaa aggaaaggaa 660  
 ggtctgaact aattgtc 677

<210> 630  
 <211> 665  
 <212> DNA  
 <213> Homo Sapiens

<400> 630  
 gagacagagt ctctgttgcc caggctggag tgtggtggcg caatcctggc tcaactgcaac 60  
 ctccagctcc tgggttcaag caattttcct gtctcagcct tccaagtagc agggactaca 120  
 ggcggtgcacc accacgcgca gctaattttt ttgtattttt agtaaaggcg aggtttcgcc 180  
 atgttggcca ggctgggtctc gaaatcctga cccagtgat ctgcctacct cactctctca 240  
 aagtgtggg attacaggtg tgagccaccg cgcccagcct taattttcaa aagacaaata 300  
 agcaaaaagc ttttcccggt cctctcccaa aacagcaatg agataactgc cttgtaatgt 360  
 ttgtttgctt tttacaaata ccaatttacc acttgctgga atccagccc aggaaccagc 420  
 ctgtgaatgt ggggtggctca tggccctggt ttatgatgac aattgggtgc ctctgtctc 480  
 ttccagaagg gtctgtctca aggtacattt tggcanactt caaagattct tttttctcaa 540  
 cttcattagc atctttgcca atccaaataa atatctgttc ccaagcatct agtaacatga 600  
 catcatcttc agctaaatca tcctgggtga actctccctg gaatctcttc aataacaaat 660  
 ctccc 665

<210> 631  
 <211> 698  
 <212> DNA  
 <213> Homo Sapiens

<400> 631  
 ctgaggagct ggtgggtctt gaggatttga atgtatttca ctgccaggaa gaatgtgtga 60  
 gcttggtacc tactcaacaa ctcacgtcag agaaggaaga tgacagcagt gtcggggaaa 120  
 tgatgttact ggtcaatggc agtaatcctg aaggtgaaga tcctgagagg gaacctgtan 180  
 aaaatgaaga ttatagagaa aagtcttcag atgatgatga aatggattct tccttgggtc 240  
 ctccagagcc tcccgataac caggaaaagg aacgactaaa tacatccatt ccacaaaaaa 300  
 ggaaaatgag aaatctgtta gttaccattg agaatgatac tcctctagag gaactctcaa 360  
 aatatgtaga catcantatt attgccctta ctcgaaatcg gaggacaagg agatgggtaca 420  
 cttgtccact gtgtgggaaa cagttaaag aaagtctta cctcatttcc caccagagga 480  
 cccacactgg agaaaaaccc tatgactgtg ntcactgtgg gaaaagcttc aatcatnaaa 540  
 caaacctcaa taaacatgag cgaattcnta caggagagaa accttattcc tgttctcagt 600  
 gtggaaaaaa cttccgtcng aattctcacc ggagtcgtcc tgaaggaatc catntaacgg 660

agaagatatt aagtgtccan aatgtgggaa aacctccc

698

<210> 632  
 <211> 466  
 <212> DNA  
 <213> Homo Sapiens

<400> 632  
 atcacaaatt gtaaatatta ttgaaattga ttgcaaattt agatcacata caaatgagag 60  
 tctgacattc aactgttttc ctatattcca aagtaaaciaa ttcctttcaa cactcaagac 120  
 ttaaacaggt attcttagag gggtatatga attgctatca gaagctgttg gctaacaagc 180  
 cagtaatttg gttctttcac canaacacag ttccagataa gcatctttgc actatttctc 240  
 aantatgaat ccccatgtgg ggggaaaacg gatatacttt caatagacac aagtcactct 300  
 ttgccttcca agtaagcana ctccagattc atcttcaaag tgttgggaaa ngggatctgt 360  
 gacctgtnc a ttatcatata acttcaaaaa ggaaagctcc ttantccaaa aagcctanat 420  
 gctgaggtat agcccttgaa atgttttctt ccctgtnaat ttctta 466

<210> 633  
 <211> 734  
 <212> DNA  
 <213> Homo Sapiens

<400> 633  
 cacatacagt ctttgtttta atgtttattg gtagaaacag atcttcaatg catactttgt 60  
 gtttatataa actctacatt ctcttaaagg ttttcgtttt gttttcactg gagattttta 120  
 gcctccaagt gaacttaaca tattgcctat gcatctgatt ctttatanac ttttanattt 180  
 taaaactaaa tttganaaac catgcatact gtatacctta ttttaataatc caaanaattg 240  
 tttgcacttt caaaaaagtt acaaaaaggc tgaacacaag ttaaataacc tatatgatgt 300  
 aaattttcca tttctgaata ctttttcagt attatatatt gcttgctgtc taataagtta 360  
 gattgtcaga ntcgcttcag taaattatct ctactttaaa attatatctg aatccccctt 420  
 ctctganatg aacttgccaa tattaacat tgtgccatat gcagtattan cccaaaagct 480  
 taaataagaa ccaaacttgt agactgaata ttttaacctt aaaattatat acctatatat 540  
 ncacctatgg tatgtgtcat attaaattta acatttcaag taacatatat atagcaaaaca 600  
 ttcagccaaa tactctttca tgaaaagata ctgtccttaa aataaaaagt tantgaaaag 660  
 cttattttaga ccnaatgtct aaatataant nctaagccta tgaaacttga anctaaagtc 720  
 tgtgtntcta tttta 734

<210> 634  
 <211> 822  
 <212> DNA  
 <213> Homo Sapiens

<400> 634  
 ctctgtgtgt tacacctgta gaaaaacacc agagcagaga gtatctcaag tgatgaagag 60  
 gttcatgaat ctgtggattc agacaatcag caaaaataaaa aagttgaagg tggatatgaa 120  
 tgtaaatatt gtacttttca aactccagat ctaaaatatgt ttacttttca tgtggattcg 180  
 gaacatccca atgtagtgt aaattcatcc tatgtttgtg tcgaatgcaa ttttcttacc 240  
 aaaaggatgt atgcactttc tgagcataat ctgaaatatc acccaggaga agagaatttt 300  
 aagttgacta tgggtgaaacg taataaccag acaatctttg aacaaacaat aaatgatctg 360  
 acttttgatg gtatgtttgt taaagaggag aatgcagagc aagcagaatc tacagaagtt 420  
 tcttcttcgg gaatatctat cagtaaaact cctatcatga aaatgatgaa aaataaagtg 480  
 gaaaataaac ggattgcagt tcatcataac tcagttgagg acgttcctga agagaaagag 540  
 aatgaaatca aaccagaccg tgaagaaatt gtagaaaatc caagttcttc agcttctgaa 600  
 tctaatacaa gtacttccat tgtaaacaga atacatccaa gtactgccag cacggtagtg 660  
 acccagcagc agttcctccc tggattgggc ccagggtgata actgctgtnt ctgctccgcc 720

agaattctaa ttgattccc naagtcttaa tccctgttna tancatcccc cctacaatgc 780  
 tgcnttggat aacaaccccc tttttactta acccctacan cc 822

<210> 635  
 <211> 819  
 <212> DNA  
 <213> Homo Sapiens

<400> 635  
 acccatttct aacaattttt actgtaaaat ttttgggtcaa agttctaagc ttaatcacat 60  
 ctcaaagaat agaggcaata tatagcccat cttactagac atacagtatt aaactggact 120  
 gaatatgagg acaagctcta gtgggtcatta aacccccctca gaaagtctaa gattcagaat 180  
 gtctccatca tattagaaga aaaatgtact gtattaaaat ttaaattgca tttttacaag 240  
 ttgtttttta attagtgttc tatttacatt gcanaacttc caccaactgc agtagtttaa 300  
 ctttggcaca acattaagtt ccatttcttt tgggtattgg atcctgcttt ttgagtgtgt 360  
 atgccccaaa acgttttcaa tgtcatcaaa gattgggcaa attcacagta aatcagacat 420  
 cttgagttga agaattgatt ctcttcaac gttttaggca gatttcagtc atctgattta 480  
 gacagcttcc gtttcacatg tcgtggaagt cccaagtgtc actatcatct gtttcttctt 540  
 catcctcttc ctgggtcatca ataacttcat ctctctctc attttctca aataattcta 600  
 tacctaattc tgatcttctc tgtctttctg caaaccactc tctgacctgc tcatanccca 660  
 tatgtgattt gttaacaaat tcatcaaggt cttgctcatt aaaaaacttg tgcttcaggt 720  
 tataatcctt aanttttgcg gttccagttt taaattttat gaatnaatgg tccccgtgtc 780  
 cccagttgtt aattcctttt ggctcctcca aggcgcaca 819

<210> 636  
 <211> 704  
 <212> DNA  
 <213> Homo Sapiens

<400> 636  
 aaaaagttat ttatttattc tttttttttt tttttttttt ttggttaaggt tgaatgcact 60  
 tttgggtttt ggtcatgttc ggttgggtcaa anataaaaac taantttgan anatgaatgc 120  
 aaaggaaaaa aatattttcc aaantccatg tgaaattgtc tcccattttt tggcttttgg 180  
 ggggttccag tttgggttgc ttgtctgttt ccgggttggg gggaaagtgt gttgggtggg 240  
 aggganccag gttgggatgg agggagtta caggaagcan acagggccaa cgtcnaagcc 300  
 naattcctgg tctggggcac caacgtccaa gggggccaca tcnatnatgg gcaggcggga 360  
 ggtcttgggt gttttgtatt caatcactgt cttgccccag gctccggtgt gactcgtgca 420  
 nccatcgaca gtgacgtgtt aggtgaancg gctgttgcgc tggcgcgga tctcgatctc 480  
 gttggaaccc tggaggancc gggccttctt gaggttgcca gtctgctggt ccatgtaggc 540  
 cacgctgttc ttgcantggt angtgatgtt ctgggagcct cgggtggacat caggcgcagg 600  
 aaggtcacct ggatgccaca tcngcanggt cggaaccctg gccgccatac cccaactggg 660  
 aatccatcng tcatgctctc cccgaaacaa aacatcctct tggt 704

<210> 637  
 <211> 693  
 <212> DNA  
 <213> Homo Sapiens

<400> 637  
 gaaagcaaat ttcttttaat ganaactcaa aattaaactt caaagggacc caacgtcata 60  
 cttccattca gggacttgat acaaaaaatt tagtttgaac tgctattagc aggtggcagg 120  
 agccaccttc aaatgaatct tcaaattgga aaatactgct tcaccacctg ttggggataa 180  
 nttgcaaatg gaataattta gtatggtttg tagctatttt gatnaccacc tcgcctgnat 240  
 accttcccat aaccactctg ctgggtcacca cctcttccac aagctcttcc tgcaaatcct 300  
 cctctaaatc cccactgttg ctgttctgta tattgtncct tcgacatggc tacttttatt 360

```

tcacatttac taaaaccaac attgtggtat ttcttttcca ttatcttctt cactggttct 420
tcttccttaa aggtaataaa gcaaaaccca cgctcttat tggctctgtt gtccatgggg 480
agctctatgg attccacctc accaaaacca ccaaagtact cccttatttt ctcttcaggt 540
gtatctggan aaaggccacc ancnaaaatt ttttaaccgg ctcttttgtt tccatggctt 600
tgggcctttt angatcaatc accttcccca ttcaatttat gttctttttg gatccatgaa 660
cctttntcta cncctccccg aattccttaa ata 693

```

&lt;210&gt; 638

&lt;211&gt; 619

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 638

```

gcactctgaa gttagatcct atcacagggc gatcaagggg ttttggcttt gtgctattta 60
aagaatcgga gagtgtanat aagggtcatg atcaaaaaga acataaattg aatgggaagg 120
tgattgatcc taaaagggcc aaagccatga aaacaaaaga gccggttaaa aaatttttgt 180
tgggtggcctt tctccagata cacctgaaga gaaaataagg gagtactttg gtggtttttg 240
tgaggtggaa tccatagagc tcccatgga caacaagacc aataagaggc gtgggttctg 300
ctttattacc ttttaaggag aagaaccagt gaagaagata atggaaaaga aataaccacaa 360
tgttggtctt agtaaatgtg aaataaaaagt agccatgtcg aaggaaacaat atcagcaaca 420
gcaacagtgg ggtatctanag gaggatttgc angaagagct cgtggaagan gtggtggccc 480
cactcaaac tggaaccang gatatanatna ctattggaat cnaggctatg gcaactatgg 540
atatnacagc ccagggttacc gtggttntgg aagatatgac tncactgggtt acnacaacta 600
ctatggatat ggtgattat 619

```

&lt;210&gt; 639

&lt;211&gt; 694

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 639

```

cggcggcgcc attaaagcga ggaggangcg agagcggccg ccgctggtgc ttattctttt 60
ttagtgagc- gggagagagc- gggagtgtgc- gccgcgcgag- agtgggaggc- gaagggggca 120
ngccagggan aggcgcagga gcctttgcag ccacgcgcgc gccttccttg tcttggtgct 180
ttcgcgaggt acagcgggcy gcgggcancg gcggggatta ctttgctgct agtttcgggt 240
cgcggcagcg gcgggtgtat tctcggcggc agcggcggag acactatcac tatgtcggag 300
gancanttcg gcggggacgg ggcggcgcca ncggcaacgg cggcggtagg cggctcggcg 360
ggcgaacang angganccat ggtggcgggc acacangggg cancgcggcg ggcgggaacn 420
gaccgggacc gggggcgga cgcntcttg angtccnaa gggggcnncg ccnaatccga 480
aggggcgaaa attgaccccg tatgaaccaa gaagatgaat ggaaaatgtt tatangaagc 540
cttanctggg acactnccca gaaagatctg aaggactact ttccnaatt ttgggtgaaa 600
ttgttaaaact gccctcttga aattttnatn ctatccnngg ggcnatcaaa ggggtttttg 660
gcttttttcc tattttaaac aaatcccga aaat 694

```

&lt;210&gt; 640

&lt;211&gt; 728

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 640

```

cgccactgcn gcaggaggcg tgaggggata aaaacattca gatggcagat cacagttttt 60
cagatggggg tcttcagat tccgtggaag ctgctaaaaa tgcaagtaac acagaaaagc 120
tcacagatca ggtgatgcag aatcctcgag ttctggcagc tttacaggag cgacttgaca 180
atgtccctca cacccttcc agctacatcg aaactttacc taaagcagta aaaagaagaa 240
ttaatgcatt gaacaactt caggtgagat gtgctcacat agaagccaag ttctatgaag 300

```

aggtacatga	cttggaaaga	aagtatgcag	cgctatacca	gcctctcttt	gacaagagaa	360
gagaatttat	caccggcgat	gctgaaccaa	cagatgcgga	atcggaatgg	cacagtgaaa	420
atgaagagga	agagaaattg	gctggagaca	tgaaaagtaa	agtagtcgtc	acagaaaaag	480
cagcggcaac	ggctgaagag	ccagatccca	naggaattcc	agagttctgg	tttaccatct	540
tcagaaatgt	ggacatgctg	agtgaattan	tccaggaaat	atgatgaacc	aatcttgaaa	600
acacctgcag	gatnttaaag	ttgaaatttt	ctgacctggg	acagcctatg	tcttttgtgt	660
tagaattcca	ctttgaaccc	cacgactact	ttaccaactc	agtcctgaca	aaaaccttac	720
cagatgaa						728

<210> 641  
 <211> 732  
 <212> DNA  
 <213> Homo Sapiens

<400> 641						
acctaattag	atagaagttc	aggaatttct	atttcttttg	ggttgatgaa	ccacaggcta	60
gcataagtcc	actgtcaata	aatgtttgtt	gtggccagac	ctccataaaa	gagatattcc	120
ctgtgttcac	aagttccctg	aagcttaggt	tttgagagaa	tattgttgag	tcactaggca	180
gggctcacat	aggaactgg	caatcacctc	tgaaactgct	tcacagacac	ctgcttttcc	240
tgctctgttc	ctcanacttc	tctcttcaa	gcgtattccc	cccacaacaa	ggacagcagc	300
ttggactaca	tatctggctg	atgatgtaat	aaaaagatta	ggcatggggg	tttctaagc	360
cacaattcag	ggccactctg	caccaacaga	gataagcacc	cagggtggaag	cccccttcc	420
cogagcctca	tacattgtca	tcatcttcta	tggcctcccc	agtgaagtac	agcacagccc	480
gcgggactat	cgcctcacgg	aaaaagtgtc	caatttcaaa	atcagaagct	aatgtgaatt	540
caaaatcttc	atccagtgat	ctccatcccc	ggatgctttc	caatggattg	aagaaattga	600
aaaaggactc	attgggtact	gtttcgtaat	tggtctaaca	gtgcctcaac	cttatgcttc	660
tgctttncnt	ggaaggtntt	gaaagtaaca	ttcttncctt	cttccaantc	aattattnac	720
ccccgttcac	aa					732

<210> 642  
 <211> 582  
 <212> DNA  
 <213> Homo Sapiens

<400> 642						
gctttttctt	tctctctct	tctgattctg	gctcttgctt	tatttggtgc	tgctgcgcc	60
tctcagcctc	ttgttccatc	ctctggagct	ctgcatctgg	atctggatgc	ccttctgcc	120
naaggcgtg	cctgatttcc	tcaagctcct	ccttctctct	cttctatct	cgttcacctg	180
cttccatttc	cttttctcta	tcacgcaacc	ttttctgaaa	agcacttcc	ctgtaatat	240
tggggctcatc	tctatcatca	tcatagtctt	ctaanaattc	ttttagtcgt	ttagcttctt	300
tggccatttc	tcttcttctt	tcttcttctc	tttcagcttc	tttctcatat	tcccgggttt	360
tctttcgttc	tctgatttcc	caattcttaa	ggcgctcttg	ataancagct	tcttctctc	420
gganttttct	ttcaagtttt	cttcgttcgt	atgcatcttc	ttcatcttct	tctcggtccc	480
gttttttgct	tttttctctt	tctcgtctcc	gttctctct	cncctctct	ctcgtctccc	540
ttctcgttct	cgtctctntt	ctctctctct	ctctctttcc	cg		582

<210> 643  
 <211> 784  
 <212> DNA  
 <213> Homo Sapiens

<400> 643						
aagaaaagct	caagtttcca	agtctcttaa	gggagcgatt	aggcatgtca	gctgatccag	60
ataatgagga	tgcaacagat	aaagttaata	aagttggtga	gatccatgtg	aagacattag	120
aagaaattct	tcttgaaaga	gccagtcaga	aacgtggaga	attgcaaact	aaactcaaga	180

cagaaggacc	ttcaaaaact	gatgattcta	cttcagggag	caagaagctc	ctccactatc	240
cgtatcaaaa	ccttctctga	ggtcctggct	gaaaaaaaac	atcggcagca	gggaagcaga	300
gagacnaaaa	agcnaaaagg	gatacaactt	gcatcaagct	aaagattgat	agtgaatta	360
aaaaaacagt	agttttgcc	ccattgttg	ccagcagagg	acaatcagag	gagcctgcag	420
gtaaaacaaa	gtctatgcag	ggaggtgcac	atcaagacgc	tggaaganat	taaactggag	480
anggcactga	gggtgcagca	gagctctgag	agcagcacca	gctccccgtc	tcaacacgag	540
gccactccag	ggggcnaggc	ggctgctgcg	aatcacnnnn	agaaccggga	tgaaagaaga	600
gaagancctt	ccgggaagg	aatgaagttg	attctcagag	cngtattaga	acngaagcta	660
aagangctcc	gggtgagaac	nccggggttg	acctccctaa	aattccagtc	cagagatgtn	720
agacctgaaa	gagaaccctt	gccganaccg	ccgggaaagg	ganaaatccg	tcttgacccc	780
cttc						784

&lt;210&gt; 644

&lt;211&gt; 749

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 644

cctacatcag	ttttatttaa	aacacaaaca	agtatttctc	tttctgtaag	ggcaaagtgt	60
tcaaataatg	cggaaacacga	aacattgact	aatacaagt	ctttaaatat	gaaacaaaat	120
tattttttta	aaaagcaaaa	naataaagaa	tatatacaaa	agggacctgn	aatctgtaag	180
gtgattccaa	aaacnaaata	antagaaaat	ccatggtgaa	acctgaacat	tctacctctg	240
ctttggagaa	gggtatcat	acaacattca	gtcagctgaa	natggattgg	tanaggtgtg	300
tctatacata	aacttcagtc	atttttgctt	gtgcanaatc	atcccaatct	tcccaanact	360
gaatgggcag	tcctgtggct	ttcttctctt	tccatattcc	caacaaggct	acgtgaagtt	420
caactcttga	tgagccgctt	acaacagcag	ttccttaggg	agccaacatg	acaggtgggt	480
canatttccc	tatgagaaac	aaaactggcc	acctacagca	aaatatcaaa	atgggtaagt	540
ccttccttcc	tcttctctct	gattatatac	aacatatctc	ctttcaagac	tattatttcc	600
atcatgctta	ttccttcaca	aatctaaacc	ttgaggtgat	atgaaggaaa	ccancntcaa	660
aaaaaagaaa	actcaattcc	gaaatgaana	aaactgggcn	nggtatncaa	tacncccan	720
aacatctcca	tatccctggc	ccagttacc				749

&lt;210&gt; 645

&lt;211&gt; 751

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 645

agactttcct	acatcagttt	tattttaa	acaaacaagt	atttctcttt	ctgtaagggc	60
aaatgggtca	aataatgcgg	aacacgaaac	attgactaat	acaagtgcct	taaatatgaa	120
acaaaattat	tttttaaaaa	agcaaaagaa	taaagaatat	atacaaaagg	gacctggaat	180
ctgtaaggtg	attccaaaaa	cgaataaagt	agaaaatcca	tggtgaaacc	tgaacattct	240
acctctgctt	tgagagaagg	ctatcataca	acattcagtc	agctgaagat	ggattggtag	300
agggtgtgtc	atacataaac	ttcagtcatt	tttgcttgty	cagaatcatc	ccaatcttcc	360
caanactgaa	tgggcagtc	tgtggcttcc	ttccttttcc	atattcccaa	caaggctacg	420
tgaagttaa	ctcttgatga	gccgcttaca	acagcagttc	cttaggancc	caacatgaca	480
ggtgggtcag	atttccctat	gagaaacaaa	actggncacc	tacagcaaaa	tntcaaatg	540
ggtaagtcct	tccttctctc	tcctctgat	tatntacaac	atatctcctt	tcaagantat	600
tatttccatc	atgcttattc	cttcccaaat	ctaaaccttg	aagggtgattt	gaagggaaac	660
cnccatccnn	aaaaagaaaa	accttctccc	aaattgaaaa	aaaactnggc	agggtataca	720
atacaccccc	canaaactcn	ccaattttcc	c			751

&lt;210&gt; 646

&lt;211&gt; 760

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 646

cctacatcag	ttttatttaa	aacacaaa	agttttctc	tttctgtaag	ggcaaatggt	60
tcaaataatg	cggaacacga	aacattgact	aatacaagt	ctttaaatat	gaaacaaaat	120
tattttttta	aaaagcaaaa	gaataaagaa	tatatataaa	agggacctgg	aatctgtaag	180
gtgattccaa	aaacnaaata	agtagaaaat	ccatggtgaa	acctgaacat	tctacctctg	240
ctttggagaa	gggctatcat	acaacattca	gtcagctgaa	natggattgg	tagagggtgtg	300
tctatacata	aacttcagtc	atttttgctt	gtgcanaatc	atcccaatct	tcccaanact	360
gaatgggcag	tctgtggtt	ttcttccttt	tccatattcc	caacaaggct	acgtgaagtt	420
caactcttga	tgagccgctt	acaacagcag	ttccttagga	gccacatga	cagggtgggtc	480
aaatttcctt	atganaaaca	aaactggcca	cctacagcaa	aatatcaaaa	tgggtaantc	540
cttccttcc	cttcctcctg	attatataca	acatatctcc	tttcaagact	attattccat	600
catgcttatt	ccttcacaaa	tctaaacctt	gaagtgatat	gaangaaacc	ncctccaga	660
aaagaaaact	cnantcanaa	atgaaaaaaa	ctggcaggta	tncaatacac	cccaaaacnt	720
ctcaatntcc	tggcacanta	caatccattg	ttctgctaca			760

&lt;210&gt; 647

&lt;211&gt; 1041

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 647

caaaggcgac	agctgccc	tccgtcactg	tgaagctgca	ataggaaatg	aaactgtttg	60
cacattatgg	caagaagggc	gctgttttcg	acaggtgtgc	aggtttcggc	acatggagat	120
tgataaaaaa	cgagtgaaa	ttccttgcta	ttgggaaaat	cagccaacag	gatgtcaaaa	180
'attaaactgc	gctttccatc	acaatagagg	acgatatgtt	gatggccttt	tcctacctcc	240
gagcaaaact	gtgttgccca	ctgtgcctga	gtcaccagaa	gaggaagtga	aggctagcca	300
acttttcagtt	cagcagaaca	aattgtctgt	ccagtccaat	ccttcccttc	agctgcggag	360
cgttatgaaa	gtagaaagtt	ccgaaaatgt	tctagcccc	acgcattccac	cagttgtaat	420
taatgctgca	gatgatgatg	aagatgatga	tgatcagttt	tctgaggaag	gtgatgaaac	480
caaaacacct	accctgcaac	caactcctga	agttcacaat	ggattacgag	tgacttctgt	540
ccggaacact	gcagtcaata	taaagcaagg	tgaatgtttg	aattttggaa	taaaaactct	600
tgaggaaatt	aagtcaaaga	aaatgaagga	aaaaatctaag	aagcaagggtg	agggttcttc	660
aggagtttcc	aagtctttta	ctccacctg	agcccggtcc	aagtcctgaa	aaagaaaatg	720
tcaggactgt	ggtgaaggac	agtaactctc	tccaacaaac	aanggagaaa	gaanccttgg	780
gtagattgag	tctactgan	agacggggga	aacgaaaant	tcagcaagcg	gtgacaagtg	840
atcctccaat	aaagcgttac	cctgcacaaa	ggctagggaa	aaaaanttaa	ancccanaaa	900
actaacattg	acaaaaccac	caaagaaagc	tcaagnttcc	aagtcctcta	agggaaccgan	960
taagcatgtc	aaccggatca	anataatgng	gntgcaacag	ttaaagntta	aaaaattggg	1020
gaaattcagt	taaaacattt	g				1041

&lt;210&gt; 648

&lt;211&gt; 810

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 648

ccctacatca	gtttatttta	aaacacaaac	aantatttct	ctttctgtaa	gggcaaatgg	60
ttcaaataat	gcggaacacn	aaacattgac	taatacaant	gctttaaata	tgaacaaaaa	120
ttatttttta	aaaaagcaaa	agaataaana	atatatacaa	aagggacctg	naatctgtaa	180
gctgattcca	aaaacnaaat	aantanaaaa	tccatgggtga	aacctgaaca	ttctacctct	240
gctttggana	agggtatca	tacaacattc	antcagctga	aaatggattg	gtaaagggtg	300
gtctatacat	aaacttcant	catttttgct	tgtgcaaaat	catcccaatc	ttcccaaaac	360
tgaatgggca	gtcctgtggc	tttcttcctt	ttccatattc	ccaacaaggc	tacntgaant	420



tcaactcttg	atnagccgct	tacaacagca	gttccttagg	agccaacatg	acaggtgggt	480
caaatttccc	tatgaanaaa	aaaaactggc	cacctacagc	aaaatatcaa	aatgggtaag	540
tccttccttc	ctcttctccc	tgattatata	caacatatct	cctttcaaga	ctattatttc	600
catcatgctt	attccttcac	aaatctaaac	cttgagggtga	tatgaaggaa	accancatca	660
agaaaagaaa	accaattcan	aaatgaanaa	aactggcagg	tntacaatac	accccananc	720
atctcaatat	ccttggcaca	gttacaattc	agtgttctgc	tacagcccat	aaaataaata	780
ttggcagctt	gaataancnc	attttttccc				810

&lt;210&gt; 649

&lt;211&gt; 656

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 649

cccnacatca	nttttattta	aaacacaaac	aattatttct	cttnctgtaa	gggcaaattg	60
ttcaaataat	gcgnaacaca	aaacnttgac	taatacaatt	gctttaaata	tnaaacaaaa	120
ttatttttta	aaaaancaaa	aaaataaaaa	atatntacaa	aagggaacctg	aaatctgtaa	180
nctnatncca	aaaacaaaaa	aattaaaaaa	tccatggtna	aacctnaacn	tnctacctct	240
gcttnggaaa	agggctatca	tacaacntnc	antcanctna	aaatggatng	gtaaaggtn	300
ntctatacat	aaacttcant	cattttngct	tgtgcaaaat	cancccaatc	tncccaaaac	360
tnaatgggca	ntcctgtggc	ttntnctctt	tnccatatnc	ccaacaaggc	tacttnaatt	420
tcaactcttn	ataancgct	tacaacagca	ntncttagn	anccaacatn	acaggtgggt	480
caaattcccc	tataaaaaac	aaaactggcc	ncctacanca	aaatatcaaa	atgggtaatt	540
ccttcctncc	tctnccncc	nattatatac	aacattttct	ctttcaaaac	tattattncc	600
atcatgcttn	ttcctncaca	aatctaaacc	ttgangtgat	ttgaaggaa	cacctc	656

&lt;210&gt; 650

&lt;211&gt; 645

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 650

gaacttcccn	acnncatttt	tattttaa	acncaaat	nttnencttn	ctntangggc	60
aantggtnc	aatantgcgn	aacncaaa	ac	aatgtgctt	taaatntaaa	120
ncaaan	ttat	tttttaaa	aa	aa	aa	180
ctntaac	cta	atcccaaaa	caaaata	att	aaaaannccn	240
nggt	naanc	tna	acntnct			300
aggt	ttttct	anacata	aa	cttcatt	ttggcttntn	360
caaaactna	atg	gcnncc	ntggctt	nct	ccctttccca	420
naatt	ncaac	ncttnata	ac	ccccttaca	caccattncc	480
gggt	caaatt	ncccnata	aa	acaaanct	ggccctncc	540
ttcct	nctn	ccctcccc	ngnatata	ta	caacatntcc	600
ccacg	cttat	tcncccaaa	nntaanc	ctt	gaagttattt	645

&lt;210&gt; 651

&lt;211&gt; 780

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 651

ccttgacctc	ccaaagtgt	gagattacag	gcctgagcca	ctgcaccttg	ccttccttac	60
ctcttttctc	cgacattttt	atgtttctaa	cattgaactc	taaggaagct	ggtgaacaaa	120
cacgccatat	gtatgcagaa	cacttaacag	aattatgcta	tgttgtctgt	ttttgtttgt	180
atttcttgtc	cttgctgaag	attgacttga	aatcttaa	ac	taagttctcc	240
gcggtgacag	tgatcctcca	ttaaagcgta	gcctggcaca	gaggctaggg	aagaaagttg	300

aagctccaga	aactaacatt	gacaaaacac	caaagaaagc	tcaagtttcc	aagtctctta	360
aggagcgatt	aggcatgtca	gctgatccag	ataatgagga	tgcaacagat	aaagttaata	420
aagttggtga	gatccatgtg	aagacattag	aagaaattct	tcttgaaaga	gccagtcaga	480
aacgtggaga	attgcaaaact	aaactcaaga	cagaaggacc	ttcaaaaact	gatgattcta	540
cttcaggagc	aagaagctcc	tccactatcc	gtatcaaaac	cttctctgag	gtcctggctg	600
aaaaaaaaaca	tcngcagcag	ggaactgaag	agacaaaaaa	gccnaaagga	tacaacttgc	660
atcaagctaa	agattgatag	tgaatttaaa	aaaaacagta	atthtngcca	cccattgttg	720
cnngcagaag	acaatcanaa	gaacctgcag	gtaaaacaaa	ntctatgcag	ggaggtgccc	780

&lt;210&gt; 652

&lt;211&gt; 518

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 652

gnaactnccct	acatcatttt	tattttaaac	acaaacaatt	ntttcncttt	ctgtangggc	60
aatgggttca	aataatgcgg	aacacaaaac	nttnactaat	acaattgctt	taaatntnaa	120
acaaaatttat	tttttaaaaa	ancaaaaaaa	taaaaaatnt	ttncaaangg	gacctgaaat	180
ctntaanctn	atnccaaaaa	caaaataatt	naaaaatcca	nggtgaaacc	tnaacntnct	240
nccnctgctt	tggaaaaggg	ctntcataca	acnttcattc	ncctaaaaat	ggattggtaa	300
angttttnt	atacataaac	tncattcatt	tttgcttntg	caaaatcanc	ccaanctncc	360
caaaaactnaa	tgggcantcc	tntggctttc	tncttttccc	anatncccaa	caaggctact	420
tnaatttcaa	cncttnataa	nccgcttaca	acancatttc	cttaggancc	aacatnacgg	480
tgggtcaaat	cccctataaa	aaacaaaact	ggccnccct			518

&lt;210&gt; 653

&lt;211&gt; 490

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 653

gttaataaag	ttgggtgagat	ccatgtgaag	acattagaag	aaattcttct	tgaaagagcc	60
agtcagaaac	gtggagaatt	gcaaaactaaa	ctcaagacag	aaggaccttc	aaaaactgat	120
gattctactt	caggagcaag	aagctcctcc	actatccgta	tcaaaacctt	ctctgaggtc	180
ctggctgaaa	aaaaacatcg	gcagcaggaa	gcagagagac	aaaaaagcaa	aaaggatata	240
acttgcatca	agctaaagat	tgatagtga	attaaaaaaa	cagtagtttt	gccacccatt	300
gttgccagca	gaggacaatc	agaggagcct	gcaggtaaaa	caaagtctat	gcaggagggt	360
gcacatcaag	acgctggaag	aaattaaact	ggagaaggca	ctgagggtgc	agcagagctc	420
tgagagcagc	accagctccc	cgtctcaaca	cnaggccact	ccaagggcaa	ggcggctgct	480
gcnaatcccc						490

&lt;210&gt; 654

&lt;211&gt; 359

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 654

cccantccn	ttttanttna	aancccaacc	aattnttccc	cttccgntan	gggcaatngn	60
tccaattatn	ncgaacncca	aaccttnaan	natnccaatt	ncttaaatnt	taaaccaaat	120
tnntttttta	aaaagccaaa	naattaagaa	ttttttccaa	agggaaacng	aatccnttag	180
ggtaatccca	aaaccaaatt	agttaaaaat	ccctggntaa	accnaacnt	tcnccnccn	240
ccttggaaaa	agggnnnccn	ncnaccttcc	atnccnntaa	aaatgaatgg	ntaaagnntt	300
ttcnncctt	aacntccatc	ctttttgnct	nttccaaaanc	ctccccance	tccccaaaa	359

&lt;210&gt; 655

<211> 611  
 <212> DNA  
 <213> Homo Sapiens

<400> 655  
 tgaaaaaaa catcggcagc aggaancaga aagacnaaaa agcaaaaagg atactacttg 60  
 catcangcta angattgata gtgaaattaa aaaaacagta tttttgccac ccattgttgc 120  
 cancagagga caatcanagg agcctgcagg taaaannaag tctatgcagg aggtgcacat 180  
 caagacgctg gaagaaatta aactggagaa ggcactgagg gtgcagcana gctctgagag 240  
 cagcaccagc tccccgtctc aacacnaagc cactccatgg gcnangcggc tgctgcgant 300  
 cncnnaaga ncagggatga angaagagaa gaaccttcag gaaggaaatg aatttgattc 360  
 tcagancatt attataactg aagctnnana ngcttcnggt gagaccacng ganttgacat 420  
 cactaaaatt ccagtcaaga gatgtgagac catgagagag aagcacatgc acaaaacanc 480  
 nngagagggg aaaatcagtc ttgacacctc ttcggggaga tgtagcatct tgcggnaccc 540  
 aantggcaga gaaaccagtg ctcactgctg tgccaggaat cacncggcac ctgaccaagc 600  
 ggcttccccac a 611

<210> 656  
 <211> 634  
 <212> DNA  
 <213> Homo Sapiens

<400> 656  
 ccnecatcag ttttatttaa aacacaaaca agtntttcnc tttctgttag ggcaaatggg 60  
 tcaaataatg oggaacacna aacattgact aatacaantn ctttaaataat gaaacaaaat 120  
 tattttttta aaaancnaaa naataaagaa tatntncaaa agggacctgg aatctgttag 180  
 ctgattccaa aaacnaaata anttnaaaat ccttggtgaa acctgaacat tctacctctg 240  
 ctttggaanaa gggntatcat acaacattca gtcngctgaa aatggattgg taaaagtntn 300  
 tctatacata aacttcagtc atttttgctt gtncaaaaatc atcccaatct tccccaaant 360  
 gaatgggcag tcctgtggct ttcttctctt tccatattcc caacaaggnt acntnaantt 420  
 caactcttga nnanccgctt acaacagcag ttccttagga nccccatgac aggtgggctn 480  
 aatttcccta tnaaaaacaa aactgggccc tacagcaaaa tatccaaatg ggtnagtcct 540  
 tcttctctct tccccgant atatacacat atctccttcc aanaatanta tttccccatg 600  
 cttattcctt ccnaatcta aaccttgaag tgat 634

<210> 657  
 <211> 958  
 <212> DNA  
 <213> Homo Sapiens

<400> 657  
 gaaagaaaag catcatgtaa aaatgaaagc caagagatgt gccactcctg taatcatcga 60  
 tgaaattcta ccctctaaga aaatgaaagt ttctaacaac aaaaagaagc cagaggaaga 120  
 aggcagtgtc catcaagata ctgctgaaaa gaatgcatct tccccagaga aagccaaggg 180  
 tagacatact gtgccttgta tgccacctgc aaagcagaag tttctaaaaa gtactgagga 240  
 gcaagagctg gagaagagta tgaaaatgca gcaagagggt gtggagatgc ggaaaaagaa 300  
 tgaagaattc aagaaacttg ctctggctgg aatagggcaa cctgtgaaga aatcagttag 360  
 ccaggtcacc aaatcagttg acttccactt ccgcacagat gagcgaatca aacaacatcc 420  
 taagaaccag gaggaatata aggaagtga ctttacctct gaactacgaa agcatccttc 480  
 atctcctgcc cgagtgaacta agggatgtac cattgttaag cctttcaacc tgtcccaagg 540  
 aaagaaaaga acatttgatg aaacagtttc tacatatgtg ccccttgcac agcaagttga 600  
 agacttccat aaacgaaccc ctaacagata tcatttgagg agcaagaagg atgatattaa 660  
 cctgttacc cccaaatctt ctgtgaccaa gatttgacga gaccacagc actcctgtac 720  
 tgcaaacaa acaccgtgca cgggctgtga cctgcaaaaa gtacagcaga gctggaggct 780  
 gaggagctnc gagaaattgc aaccantaca anttccaaag cacgtngaac cttgattccc 840

agaataactt ganggggtggg cccaaccttg cccaagaaaa ccaccngtga aancaancca 900  
acggagccct antnggcttt gatttgggaa tttgggaaan gaatncaagg gagngag 958

<210> 658

<211> 816

<212> DNA

<213> Homo Sapiens

<400> 658  
gggagggaaa gacaaaacgt atttattcca ggccaggtct taaaatgcac actgcacggt 60  
tccctgttgt tatcagcacc agtaaggaaa gaacgtgcct taacggcagc cccaccaga 120  
gcctgctgctg tggctgctgt gaggtctccc atgaatccac gcagtcttct tcctcactgg 180  
tgcaatttgtt gaggttttct accctcacag caaagggatc cttaactata aattcacggt 240  
atgcagagaa gaggacagaa tctgatttac tgattgttcc tcattttaa catgacttaa 300  
tctctatctt aggatttaac tatctttatt ttctggttaa aattttttaa aaaagtggg 360  
agaggggtgag agtcgtaagg ggcaatagca atagagatta cactgtgctg acacagagac 420  
taaattctag tcagagtga gaccatataa aaggccggt gatggtttaa aggaagtaac 480  
tacaatggagt ctaatcgaga cattcatgan ttacatctca ttattagcct tagtaatgta 540  
agaaaacaat tctcaacaaa actgggagtc cacagttgtc aagtatgctt tctcangcac 600  
gggtaggtaa aagtctggan aaatgggttc tctccatgcc caatgacaaa gcaagacggt 660  
cctaggtttg aagttaaaaa caggtcccaa ttgcccgggc ggtatccgcc agctcacagc 720  
tgaatttaan catggaaatc caatggaaaa attggganat acnggcacat tcanaaggct 780  
ggtcctttga cttatctcca naaccgggt actggc 816

<210> 659

<211> 726

<212> DNA

<213> Homo Sapiens

<400> 659  
tgagaaaagt ggtacaaata ctgggaaaaa cctgctcttc tgcgttaagt gggagacaat 60  
gtcacaagtt aaaagctctt attcctatga tgccccctcg gatttcatca atttttcatc 120  
cttgatgat gaaggagata ctcaaaacat agattcatgg tttgaggaga aggccaat 180  
ggagaataag ttaactggga agaatggaac tggagggctt tttcagggca aaactcctt 240  
gagaaaggct aatcttcagc aagctattgt cacacctttg aaaccagttg acaacactta 300  
ctacaaagag gcagaaaaag aaaatcttgt ggaacaatcc attccgtcaa atgcttggtc 360  
ttccctggaa gttgaggcag ccataatcaag aaaaactcca gccagcctc agagaagatc 420  
tcttaggctt tctgtctaga aggatttggg acagaaagaa aagcatcatg taaaaatgaa 480  
agccaagaga tgtgccactc ctgtaatcat cgatgaaatt ctaccctcta agaaaatgaa 540  
agtttctaac ancacaaaga agccagagga agaaggcagt gctcatcaag atactgctga 600  
aaagaatgca tcttcccaa gagaaagcca agggtagaca tactgtgcct tgtatgccac 660  
ctgcanagca gaagttna aaangtactg angagcaang aatctggaga agagtatgaa 720  
aatgc 726

<210> 660

<211> 824

<212> DNA

<213> Homo Sapiens

<400> 660  
aggatttaac tatctttatt ttctggttaa aattttttaa aaaagtggg agaggggtgag 60  
agtcgtaagg ggcaatagca atagagatta cactgtgctg acacagagac taaattctag 120  
tcagagtga naccatata aaaggccggc tgatggttta aagggaagtaa ctacatggag 180  
tctaactgag acattcatga gttacatctc attattagcc ttagtaatgt aagaaaacaa 240  
tttcaacaa aactggagtc cacagttgtc aagtatgctt tctcaggcac gggtaggtaa 300

aagtctggn	aaatgggttc	tctccatgcc	caatgacaaa	gcaagacggt	cctaggtttg	360
agggttaagan	caggtcccat	tgccgggagg	tatccgcagc	tcacagctga	ntttagcagt	420
ggaatcgagt	ggagaatttg	gggagataca	ggcncagtc	gaggtgtg	acttgacttt	480
atctccagac	cctgggtactt	gcgtattgga	tttgcccttat	gcaccagttc	tctccgtagc	540
ctggccanct	cctctttttt	ctgctcttcc	tctgttagtc	tggcctcctc	caactgctgg	600
gctttctggg	cttctacctc	agccattctc	ttctccagct	ccctgccgct	ctttggctct	660
ctctcagtag	cccactgaaa	angtccctga	acnaaaaaa	ccanaaanng	gccctcacia	720
ctgatttct	ctctttcttg	gggaaccaag	ggccctgaa	aaaanaaacg	gtgtttggaa	780
caaacntga	aacaagcngc	ctccttctgc	ctgtcccaat	tcct		824

&lt;210&gt; 661

&lt;211&gt; 399

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 661

ggtttgnagg	gaaaaanaaa	actttttttt	cccagnccag	ttcttaaant	nccccnngcn	60
nggtccctn	tnnttttcnc	ccccattaag	gaaaaaactt	gcntnancgg	nageccccc	120
caaaacctnc	tgcttggtg	ctttaaggnc	cccataannc	ccccatnnt	cctccccac	180
tggtncattg	gtnagggttc	ctccccccn	ccaaaggnnt	ccttacntat	aaatcccngg	240
tttncaaaaa	aaaananaaa	accaatttcn	gatnntcccc	cttnaancca	gnacttaatc	300
cctntctnag	gattnaacaa	cctttttttt	cggttaaaaa	tttttaaaaa	aattngggaa	360
anggttaaat	ccttaggggg	aatnccnata	aaaattacc			399

&lt;210&gt; 662

&lt;211&gt; 826

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 662

gtcaaatgct	tgcttctccc	tggaagtga	ggcagccata	tcaagaaaa	ctccagccca	60
gcctcagaga	agatctctta	ggctttctgc	tcagaaggat	ttggaacaga	aagaaaagca	120
tcattgtaaaa	atgaaagcca	agagatgtgc	cactcctgta	atcatcgatg	aaattctacc	180
ctctaagaaa	atgaaagttt	ctaacaacaa	aaagaagcca	gaggaagaag	gcagtgtcta	240
tcaagatact	gctgaaaaga	atgcattctc	cccagagaaa	gccaagggtg	gacatactgt	300
gccttgatg	ccacctgcaa	agcagaagtt	tctaaaaagt	actgaggagc	aagagctgga	360
gaagagtatg	aaaatgcagc	aagaggtggt	ggagatgcgg	aaaaagaatg	aagaattcaa	420
gaaacttgct	ctggctggaa	tagggcaacc	tgtgaagaaa	tcagttagcc	aggtcaccaa	480
atcagttgac	ttccacttcc	gcacagatga	gcgaatcnaa	caacatccta	ngaaccagga	540
ggaatataag	ggaagtgaac	tttacatctg	aactacgaaa	gcaccttca	tctcctgccc	600
gaantgacta	aggggatggt	ccattgttaa	gcctttcaac	ctgtcccngg	gaaagaanag	660
aacntttgat	gaaacagttt	ctacatatgt	gccccttgcc	cngcaagttg	aagacttccn	720
taancgaacc	ctnactgatt	tcttttgang	aaccagaang	gntgattttt	cctgttttcc	780
ctccaatctt	ctgtgaacaa	gatttggtgc	aanacccccg	aacccc		826

&lt;210&gt; 663

&lt;211&gt; 770

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 663

gggaagaca	aaacgtat	attccaggcc	aggtcttaaa	atgcacactg	cacggttccc	60
tggtgttatc	agcaccagta	aggaaagaac	gtgccttaac	ggcagcccca	cccanagcct	120
gctgcgtggc	tgctgtgagg	ctccccatga	atccacgcag	tcttcttctc	cactggtgca	180
gttggtgagg	ttttctaccc	tcacagcaaa	gggatcctta	actataaatt	cacggtatgc	240

anagaanagg	acagaatctg	atttactgat	tgttcctcat	ttaaaccatg	acttaatctc	300
tatcttagga	tttaactatc	tttattttct	ggttaaaatt	tttaaaaaaa	gtggggagag	360
ggtgagagtc	gtaaggggca	atagcaatag	agattacact	gtgctgacac	agagactaaa	420
ttctagtcag	agtgaagacc	catataaaaag	gccggctgat	ggtttaaagg	aagtaactac	480
atggagtcta	atcgagacat	tcatgagttt	catctcatta	ttagccttag	taatgtaaga	540
aaacnattct	caacaaaact	ggagtccaca	gttgtaant	ntgctttctc	aggcacgggt	600
aggtnaaaat	ctgganaaat	gggttctctc	catgccaat	gacaanacan	anggtcctag	660
gtttgaagtt	aaaaaacangt	cccattgccg	gcggtatccg	cagctcacag	ctgaatttac	720
cngtggaatc	aantggaaaa	tttgggaaaa	tacnggccca	atcaaaaggt		770

&lt;210&gt; 664

&lt;211&gt; 593

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 664

gaaganctga	gcagcacagc	actggtgaag	aagagctgcc	tggcggagct	cctccggctt	60
tacaccaaaa	gcagcagctc	tgatgaggag	tacatttata	tgaacaaagt	gaccatcaac	120
aagcaacaga	atgcagagtc	tcaaggcaaa	gcgcctgagg	agcagggcct	gctacccaat	180
ggggagccca	gccagcactc	ctcgccccct	cagaagagcc	ttccagacct	cccgccaccc	240
aagatgattc	cagaacggaa	acagcttgcc	atcccaaaga	cggagtctcc	agagggctac	300
tatgaagagg	ctgagccata	tgacacatcc	ctcaatgagg	acggagaggg	tgtgagcagc	360
tcctacgagt	cctacgatga	anaggacggc	agcaaggcca	agtcggcccc	ttaccantgg	420
ncctcgccgg	aggccggcat	cganctgatg	cgtgacgccc	gcntctgcgc	cttctctgtg	480
cgcaagaaag	tggctgggac	agtgggccaa	gcagctctgt	gtcatcnagg	acaacaggct	540
tctgtgctnc	naatcctcca	aggaccccng	ccctcagctg	gacgtgaacc	tac	593

&lt;210&gt; 665

&lt;211&gt; 1024

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 665

aagagattga	agcaaatgaa	tggaagaaga	aatacgaaga	gacccggcaa	gaagttttgg	60
agatgaggaa	aattgtagct	gaatatgaaa	agactattgc	tcaaattgatt	gaagatgaac	120
aaaggacaag	tatgacctct	cagaagagct	tccagcaact	gaccatggag	aaggaaacagg	180
ccctggctga	ccttaactct	gtggaaaagg	ccctttctga	tctcttcagg	agatatgaga	240
acctgaaaag	tgttctggaa	gggttcaaga	agaatgaaga	agccttgaag	aaatgtgctc	300
aggattactt	agccagagtt	aaacaagagg	agcagcgata	ccaggccctg	aaaatccacg	360
cagaagagaa	actggacaaa	gccaatgaag	agattgctca	ggttcgaaca	aaagcaaagg	420
ctgagagtgc	agctctccat	gctggactcc	gcaaagagca	gatgaaggty	gagtccttgg	480
aaagggccct	gcagcagaag	aaccaagaaa	ttgaagggaac	tgacaaaaat	ctgtgatgag	540
ctgattgcaa	agctgggaaa	gactgactga	gacactcccc	ctgttagctc	aacagatctg	600
catttggtctg	cttctcttgt	gaccacaatt	atcttgccct	atccaggaat	aattgcccct	660
ttgcaganga	aaaaaatata	cttaanaaaa	gcacatgcct	actgtgcct	gtcccgtttt	720
gctgccaatg	caacagccct	ggaagaaaac	cctatanggn	tgcatagtct	aaaaaggagg	780
ttgtngactn	gacagtgtctg	ggagcctnct	agtttcccc	cnatgaaagg	ttcccttagg	840
ctgctgagtt	tgggttttgt	gatttaacct	taagtttgtt	ttaaagtcca	ncttaacttt	900
cccaaattgt	gtttaaaatt	tgtaacnccc	cccttgggg	cttcccaaca	accggtccga	960
tttttttggg	gatcggttta	acccttttaa	tttttttagta	nccagtgggg	tttaatttag	1020
ggga						1024

&lt;210&gt; 666

&lt;211&gt; 734

&lt;212&gt; DNA

## &lt;213&gt; Homo Sapiens

## &lt;400&gt; 666

```

gagacaagat cttgctgtca cccaggatgg agtgcagtgg catgatcatg gctcactgca      60
gccttgacct cccaggctcc cacctcagcc tcccaagtag ctgggaccac aggcacgtgc      120
caccatgccc agctaatttt tattttggta nanacaaggt ttcacatgt tgcctaggta      180
ggtttcaaac tcctggactc aagtgatcct cctgcctcgg ccttccacag tgttgggatt      240
acaggaataa gccactgtgc ccggcccttt ttctcttctg taacagantt tattactgcc      300
tagctagcag gttatttggc cctcacatgt gttgaggcaa actctatact atattcttac      360
tctccanagt tccaaaatcc tttattttta aanaaaaaata aacaaacata cttcattctg      420
cccagtatat tctcttgatc tgtacaagct acgattttta ttctcttttg gagaggaagc      480
atctgttaag ttgaatggg ggatatttcc tcataacggt catggctgan aagccaggac      540
aattatcact taacgaaggt cctttggtgc tcctgtgca tcagcttcat tcactgggggt      600
caggttctta aggggtctct tccaccaatg tgctagggaa gggctgccat cacctctgtt      660
taacacatag ctacttttct aaaccnataa gcttaaaaaa gangactatg gaattaccaa      720
tggaaggcnc ataa

```

## &lt;210&gt; 667

## &lt;211&gt; 592

## &lt;212&gt; DNA

## &lt;213&gt; Homo Sapiens

## &lt;400&gt; 667

```

gttatgaana cctttccaaa ttcatttcta tttctgttaa atttattttt tactttttaga      60
gtggctatca ttataatgta atttaaaatt atatttgtaa aagtgactat tggagtgagt      120
acgaattttg tttatanatc tatgataaat gcattctccc tntaggaggt agaanagtat      180
acagctgtnt ataataagct tcgctatgaa catacatttc tcaagtcaga atttgaacac      240
cagaaggaag agtatgcacg tnttttagat gaangaaacn ataaactatg aatcagagat      300
ngcaanactg gaggaagatn aagaagaact acgtarccag ctgcttaatg tngatctcac      360
anaagacagc aaacgagtgg aacaacttgc tcgagaaaaa gtctatttgt gtccaaaatt      420
aagangttta gaggtgaag tacngaatt aaaggctgaa naggagaatt ctgangctca      480
ggtggaanaa gcccaanaa tacacgtgag gcagttggct gagatgcacg ctacagtcag      540
atccctggag gctgacaanc aatcanctaa tttacgggca naacgcttgg aa

```

## &lt;210&gt; 668

## &lt;211&gt; 373

## &lt;212&gt; DNA

## &lt;213&gt; Homo Sapiens

## &lt;400&gt; 668

```

aaaaaaaaat taagctcttt aattatgtgc acacagattt tagaaaaggt agccttttgt      60
atatanatac ctttacattc tttaggntga nttttaaatt gtcacttttt ttcaactaca      120
gtttttgtnt atagtaaacc anaanatgtg tntggaccct gttatggnc aagcatctcaa      180
agatgaagan agaattaatg atagttatat ttcactcaaa atgccaaaaa aaaaaattca      240
acaaagtaaa aatttttaaa cttgactcta actagtctct ttttgtttta cattctcaaa      300
ccattgtnaa atattctaaa tatctctgaa aatttctctt ttaatgcttc acttgntaa      360
tcttaaaatc ctg

```

## &lt;210&gt; 669

## &lt;211&gt; 661

## &lt;212&gt; DNA

## &lt;213&gt; Homo Sapiens

## &lt;400&gt; 669

```

cacacctggg ggtcctgaag acagcccagg acccagggat ctccccagc cagagtctgt      60

```

```

gtgcggaaag ttccagaggc ctcaagtgcag gctccctgtc ggagagtgcg gttggggcccg 120
tggaggcatg ctgcctgggc atcctggctg cagagagcaa ggtcgctgcg gaggagcttt 180
gctgtctgct aggccaggtc ttccagggtt tttacacgga gtccaccatc gactttcttg 240
acagagcgat atttgatggg gcctctaccc cgacccacca cctgtccctg cacagcgatg 300
actcttctac aaaagtggac attaaggaga cctacgaggt ggaagccagc actttctgct 360
tccttgaatc tgtggatgtg ggtggtgcat caccacacag caagaccatc agtgagagcg 420
agctgagcgc cagcgccact gagctgctgc aggactacat gctgacgctg cgcaccaagc 480
tgtcatcaca ggagatccag cagtttgca cactgctgca cgagtaccgc aatggggcct 540
ctatccacga nttctgcatc aacctgcggc agctctacgg ggacagccgc aagtctctgc 600
tgcttggtct gaagcccttc atccctgaaa angacagcca gcacttcnag aacttctctg 660
a

```

<210> 670  
 <211> 401  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 670
aaattattca cattgcagta aacttctttt taaggtctct gaaagttaca ataggaacat 60
catgtgcaaa actgacagcc gtccaaggcc ccagccgaca ggactggctc tccctgcccg 120
ctcgccggg cctccccga gcggggacac actgcagggc ttggtgaac cctggtggac 180
aaggcaana nccttcacc ccgactgag gctcgtgtcc ctggcagct cctgctcct 240
tcacagtaaa ngacctgggc cgccggggc catctgcacc gggcgccctc cctggccac 300
caccaagggc tgacacgcag gtctgggcag ctctctctgg gaaggcctat gacgactgcg 360
ccgaaggtgt ggggtgcccc ccatccactg tccatcatgc c 401

```

<210> 671  
 <211> 1347  
 <212> DNA  
 <213> Homo Sapiens

```

<400> 671
aagatcagcg atatcacgag tccccggag catcgctgc aggagccatg gcgcgggagc 60
tataccacga agagtctgcc cgggcgggca agcaggcggg gctgcaggtc tggaggattg 120
agaagctgga gctgggtccc gtgccccaga gcgctcacgg cgacttctac gtccgggatg 180
cctacctggt gctgcacacg gccaaagcga gccgaggtt cacctaccac ctgcacttct 240
ggctcggaag ggagtgttcc caggatgaaa gcacagctgc tgccatcttc actgttcaga 300
tggtgacta tttgggtggc aagccagtgc agaatagaga acttcaagga tatgagtcta 360
atgactttgt tagctatttc aaaggcggtc tgaaatacaa ggctggaggc gtggcatctg 420
gattaaatca tgttcttacg aacgacctga cagccaagan gctcctacat gtgaagggtc 480
gtanagtggg gagagccaca gaattccct tagctgggac agtttcaaca aggtgactg 540
cttcatcatt gacctggca ccgaaattta tcanttggtg tggttcctcn tgcaacaaat 600
atgaacgtct gaaggcaaac caggtagcta ctggcattcg gtacaatgaa aggaaaggaa 660
ggtctgaact aattgtcgtg gaanaaggaa gtgaaccctc agaacttata aaggctcttag 720
gggaaaagcc agagcttcca gatggagggt atgatgatga cattatanca gacataagta 780
acaggaaaat ggctaaacta tacatggttt cagatgcaag tggctccatg agagtgactg 840
tggtggcana agaaaacccc ttctcantgg caatgctgct gtctgaagaa tgctttattt 900
tggaccacgg ggctgcaaaa caaatttctg tatggaaagg taaagatgct aatccccaag 960
agaggaaagg tgcaatgaag acagctgaag aatttctaca gcaaatgaat tattccaaga 1020
atacccaaat tcaagttctt ccagaaggag gtgaaacacc aatcttcaaa cagtttttta 1080
aggactggag agatnaacga tcagagtgat ggcttcggga aagtttatgt cacagagaaa 1140
gtggctcaan tnnacnaat tccctttgat gcctcnnaat tacncagttc tccgcagatg 1200
gcagcccagc acaatatggt ggatgatggt tctggccaag tggaaatttg gcgtgtncaa 1260
aacaatggta ggatccaagt tgaccnnaac tcctatgggt actcccatgg tgggtgactgc 1320
tacttcatac tctacacctc tccctga
1347

```



<210> 672  
 <211> 3441  
 <212> DNA  
 <213> Homo Sapiens

<400> 672

atgtttcttaa cattgaactc taaggaagct ggtgaacaaa cacgccatat gtatgcagaa	60
cacttaacag aattatgcta tgttgtctgt ttttgtttgt atttcttgtc cttgctgaag	120
attgacttga aatcttaaac taagttctcc ctctttatag gcggtgacag tgatcctcca	180
ttaaagcgta gcctggcaca gaggctaggg aagaaagtgt aagctccaga aactaacatt	240
gacaaaacac caagaaaagc tcaagtttcc aagtctctta agggagcgat taggcatgtc	300
agctgatcca gataatgagg atgcaacaga taaagttaat aaagttggtg agatccatgt	360
gaagacatta gaagaaattc ttcttgaaa agccagtcag aaacgtggag aattgcaaac	420
taaactcaag acagaaggac cttcaaaaac tgatgattct acttcaggag caagaagctc	480
ctccactatc cgtatcaaaa cttctctctga ggtctctggc gaaaaaaaac atcggcagca	540
ggaagcagag agacaaaaaa gcaaaaagga tacaacttgc atcaagctaa agattgatag	600
tgaattataa aaacacgtag ttttgccacc cattgttgcc agcagaggac aatcagagga	660
gcctgcaggt aaacaaaagt ctatgcaggg aggtgcacat caagacgctg gaagaaatta	720
aactggagaa ggcaactgag gtgcagcaga gctctgagag cagcaccagc tccccgtctc	780
aacacgaggg cactccaagg gcaaggcggc tgetgcgaat ccccaaaaaga acagggatga	840
aagaagagaa gaaccttcag gaaggaaatg aatttgattc tcagagcatt attataactg	900
aagctaaaga agcttcaggt gagaccacag gagttgacat cactaaaatt ccagtcaaga	960
gatgtgagac catgagagag aagcacatgc acaaaaacac aggagagggg aaaatcagtc	1020
ttgacacctc ttcggggaga tgtagcctct tgcaataccc aagtggcaga gaaaccagtg	1080
ctcactgctg tgccaggaat cacacggcac ctgaccaagc ggcttccac aaagtcattc	1140
cagaagggtg aggtagaaac ctcagggatt ggagactcat tattgaatgt gaaatgtgca	1200
gcacagacct tggaaaaaag gggtaaagct aaacccaaag tgaacgtgaa gccatctgtg	1260
gttaaagtgt tgtcatcccc caaattggcc ccaaaacgta aggcagtgga gatgcacgt	1320
gctgtcattg ccgctgtgaa ccactcagct ccagcagtg cctacaggaa cccccagcca	1380
aaaaggcagc tgtggctgtt gtcccgtttg tctctgagga caaatcagtc actgtgcctg	1440
aagcagaaaa tcctagagac agtcttgtgc tgccccaac ccagtcctct tcagattcct	1500
cacccccgga ggtgtctggc ccttctctcat cccaaatgag catgaaaact cgcgcgactca	1560
gctctgcctc aacaggaaag cccccactct ctgtggagga tgattttgag aaactaatat	1620
gggagatttc aggaggcaaa ttggaagctg agattgacct ggatcctggg aaagatgaag	1680
atgaccttct gcttgagcta tcagaaatga ttgatagctg aagggtggta gtgaggacac	1740
tttaaaaaaa aatcgccaaa aaactggact tagtttcatc tattgtaaca ttacctgag	1800
atgatcattt ctttagtcta gaatttgccc caaatcagaa gtatacctct gaattatctg	1860
tatgtgtcct ggattccttg gggtcagatt tttaaagtta ctttataacc attttgtcca	1920
tttgatgcca ttgtttatca tcttttgaga aaaaagttct gtcataccct tctctccaca	1980
aaaaagagac tgagagggag atcaagtga aggttgcaag cgaacttagt gactccttga	2040
ggtgtttgtc agttttggct tttttcttct ttgttgtatt ctttatgtat tgtcttgatg	2100
tacttaatat tacctgagtt tgaaatggat gaagacagct gctaccatta aggaccaa	2160
tttatgctac cactaaacaa aaataccac tcagtctgtg ttaaattgta tgtcttttta	2220
aaggtattta aagattcaac taagctttaa agagggctga gcagctcagg aagcctgtaa	2280
tgtgggcata actctttgga cctgatcttg atgcttctgc tgetctgtta gcctctgaag	2340
agcaatatct aatttattat tactgtatatt ttttaaaagg ctttaaaagt cctcaggggt	2400
ccctgaaac taattttcta tttctgggat tccctggatt cattatatga gatggtgaca	2460
tgattagagg aattcttttt tagtatgaaa attgtccctt tcttcttca gtacttgcct	2520
cctgtctggc attgaattaa cacagggaca aaatttgggt aattttttat ttctaactct	2580
ccaacaaaac cctctgtgcc cagtatttgt ttgggtggc ttaaccacct gagggaaaaa	2640
atgagcttat tcaagctgcc aatattttatc tatgggctgt agcagtacac tgaattgtac	2700
tgtgccaggg atattgagat gctctggggg tgtattgtat acctgccagt tttcttcatt	2760
tctgaattga gttttctttt cttgatgttg gtttccctca tatcacctca aggtttagat	2820
ttgtgaagga ataagcatga tggaaataat agtcttgaaa ggagatatgt tgtatataat	2880
caggaggaag aggaaggga gacttaccac ttttgatatt ttgctgtagg tggccagttt	2940

tggtttctcat agggaaatnt gaccacctg tcatgttggc tccctaagga actgctgttg	3000
taagcggctc atcaagagtt gaacttcacg tagccttgtt gggaatatgg aaaaggaaga	3060
aagccacagg actgcccatt cagttttggg aagattggga tgattttgca caagcaaaaa	3120
tgactgaagt ttatgtatag acacaccttt accaatccat ntccagctga ctgaatgttg	3180
tatgatagcc cttctccaaa gcagaggtag aatgttcagg ttccaccatg gattttctac	3240
ttatttcgtt ttggaatca ccttacagat tccaggctcc tttgtatat attctttatt	3300
cttttgcttt tttaaaaaat aattttgttt catattttaa gcacttgat tagtcaatgt	3360
ttcgtgttcc gcattatttg aaccatttgc ccttacagaa agagaaatac ttgtttgtgt	3420
tttaataaaa actgatgtag g	3441

&lt;210&gt; 673

&lt;211&gt; 1016

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 673

gtcaaatgct tggtcttccc tggaagtga ggcagccata tcaagaaaa ctccagccca	60
gcctcagaga agatctctta ggctttctgc tcagaaggat ttggaacaga aagaaaagca	120
tcattgtaaaa atgaaagcca agagatgtgc cactcctgta atcatcgatg aaattctacc	180
ctctaagaaa atgaaagttt ctaacaacaa aaagaagcca gaggaagaag gcagtgtctca	240
tcaagatact gctgaaaaga atgcatcttc cccagagaaa gccaaaggta gacatactgt	300
gccttgatg ccacctgcaa agcagaagtt tctaaaaagt actgaggagc aagagctgga	360
gaagagtatg aaaatgcagc aagaggtggt ggagatgcgg aaaaagaatg aagaattcaa	420
gaaacttgct ctggctggaa tagggcaacc tgtgaagaaa tcagttagcc aggtcaccaa	480
atcagttgac ttccacttcc gcacagatga gcgaatcaaa caacatccta agaaccagga	540
ggaatataag gaagtgaact ttacatctga actacgaaag catccttcat ctctgccc	600
agtgactaag ggatgtacca ttgttaagcc tttcaacctg tcccaaggaa agaaaagaa	660
atttgatgaa acagtttcta catatgtgcc nccttgaca gcaagttgaa gacttcata	720
aacgaacccc taacagatat catttgagga ccaagaagga tgatattaac ctgttaccct	780
ccaaatcttc tgtgaccaag atttgagag acccacagac tcctgtactg caaaccaaac	840
accgtgcacg ggctgtgacc tgcaaaagtt acagcagagc tggaggctga ggagctcgag	900
aaattgcaac aatacaaat caaagcacgt gaacttgatc ccagaatact tgaagggtgg	960
cccatcttgc ccaagaaacc acctgtgaaa ccacgccgag ccctatgcct cgtgcc	1016

&lt;210&gt; 674

&lt;211&gt; 1135

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 674

aggaattggg acaggcagaa ggaggcngct tggttcangg tttgttccaa acaccgtttn	60
ttttttcagg ggcccttggg tccccagaa agagangaaa tcagttgtga gggccnnttt	120
ntgggttttt tngttcagg acnttttcag tgggctactg agagagagcc aaagagcggc	180
agggagctgg agaagagaat ggctgaggtga gaagcccaga aagcccagca gttggaggag	240
gccagactac aggaggaaga gcagaaaaaa gaggagntgg ccaggctacg gagagaactg	300
gtgcataagg caaatccaat acgcaagtac cagggtctgg agataaagtc aagtgaccag	360
cctctgactg ngcctgtatc tccccaaatt ctccactcga ttccactgct taaattcagc	420
tgtgagctgc ggataccgcc cggcaatggg acctgttttt aacttcaaac ctaggaccgt	480
cttgctttgt cattgggcat ggagagaacc cattntcca gacttttacc taccgtgcc	540
tgagaagca tacttgacaa ctgtggactc cagttttgtt gagaattggt ttcttacatt	600
actaaggcta ataatgagat gtaactcatg aatgtctcga ttagactcca ttagttact	660
tcctttaaac catcagccgg ccttttatat gggctctcac tctgactaga atttagtctc	720
tgtgtcagca cagtgtaatc tctattgcta ttgccccta cgactctcac cctctcccca	780
ctttttttaa aaattttaac cagaaaataa agatagttaa atcctaagat agagattaag	840
tcatggttta aatgaggaac aatcagtaaa tcagattctg tcctcttctc tgcataccgt	900

gaatttatag ttaaggatcc ctttgctgtg agggtagaaa acctcaccaa ctgcaccagt	960
gaggaagaag actgcgtgga ttcattggga gccacacagc agccacgcag caggctctgg	1020
gtggggctgc cgttaaggca cgttctttcc ttactggtgc tgataacaac agggaaaccgt	1080
gcagtgtgca ttttaagacc tggcctggaa taaatacgtt ttgtctttcc ctccc	1135

<210> 675  
 <211> 1067  
 <212> DNA  
 <213> Homo Sapiens

<400> 675	
atttttaaaga aacttcacag agctgcttca gtcggggatt tgaagaagct gaaggaatac	60
cttcagatca agaaatatga tgtaaatatg caggacaaaa aatacagaac acctttgcac	120
ctagcctgtg ctaatggaca tacagatggt gtacttttcc taattgagca acaatgcaaa	180
ataaatgtcc gggatagtga aaacaaatcc ccattgatta aggcagtaca gtgtcaaaat	240
gaggattgtg cctactattc ttctaaactt tgggtgcagac ccagatctga gggatattcg	300
ttataatact gttcttctact atgctgtttg tgggtcaaaagt ttgtcattag ttgaaaaact	360
gcttgaatac gaagctgac ttgaagcgaa aaataaggat ggggtatact cactattagt	420
tgccgtttatt aacaataatc caaaaatggt aaaatttctt ctggagaaaag gggctgatgt	480
gaatgcttca gataattatc aaagaacagc ccttattctt gctgtcagtg gtgaaccacc	540
atgtttagta aagcttcttc ttcagcaagg tgtggaatta tgttacgaag gtattgtgga	600
ttcacagctg aggaatatgt ttatttccat ggttttactg catagatacc cacaattcac	660
tgcgagccat ggaagaaga aacatgctaa atagacacct tattcttggc actacatgtg	720
actaaaggaa gatattggaac ccatttctac aatttctttg ccgcttcctt gaattggaaa	780
aatgtacttt gaaagaaccg gttaagtga ctatgataat atttttgctg actaccagt	840
tgaagaaaaa gtttcgttaa ttggatggga tttttttttt tcacgttaga agaattgaatg	900
aagaaatttt aaaagataaa catttatattg tgaaccatca gctgaaaaa taaatttgtg	960
ttcaatatat aggagaaaaa atttgtgtca aaatgttgaa tggaataata atgagaaact	1020
gtgttaggca tgtattaaaa catctaaata aaataaaaaat acatttc	1067

<210> 676  
 <211> 784  
 <212> DNA  
 <213> Homo Sapiens

<400> 676	
aaaagaattc tacaagattg tggaaattcac aatctagtat tgatcaaaaa ttggcaaatc	60
aaattaatga tcttagacaa actgtcattt ggatgggaga cagactcatg agcttagaac	120
atcgtttcca gttacaatgt gactggaata cgtcagattt ttgtattaca ccccaaattt	180
ataatgagtc tgagcatcac tgggacatgg ttagacgcca tctacaggga agagaagata	240
atctcacttt agacatttcc aaattaaaag acaaaatttt cgaagcatca aaagccatt	300
taaatttgggt gccaggaact gaggcaattg caggagtgc tgatggcctc gcaaactcta	360
acctgtcac ttgggttaag accattggaa gtactacgat tataaatctc atattaatcc	420
ttgtgtgcct gttttgtctg ttgttagtct gcagggtgtac ccaacagctc cgaagagaca	480
gcgaccatcg agaacgggcc atgatgacga tggcggtttt gtcgaaaaga aaagggggaa	540
atgtggggaa aagcaagaga gatcaaatgt ttactgtgtc tgtgtagaaa gaagtagaca	600
tgggagactc cattttgtta tgtgttaaga aaaattcttc tgccttgaga ttctgttaat	660
ctatgacctt acccccaacc ccgtgtcttc tgaaacgtgt gctgtgtcaa ctcaggggtg	720
aatggattaa gggcgggtgca ggatgtgctt tgttaaacag atgcttgaag gcagcatgct	780
cctt	784

<210> 677  
 <211> 1362  
 <212> DNA  
 <213> Homo Sapiens

&lt;400&gt; 677

ggcagcagct	gggcattaat	gaggatcatt	ctgaggggtga	tgaaaaatct	gagaaggaaa	60
ctattatggc	tcaccagccg	actgatgtgg	agtcactttt	attgcaagtt	gcaaggaaaca	120
agaatactgc	catccgtgaa	gaactcaacc	agctgaaaaa	tgaaaacaga	atgttaaagg	180
acagggttgaa	tgcattgggc	ttttccctag	agcagaggtt	agacaattct	gaaaaactgt	240
ttggctatca	gtccctgagc	ccagaaatca	cccctggtaa	ccagagcgat	ggaggaggaa	300
ctctgacttc	ttcagtggaa	ggctctgccc	ctggctcagt	ggaggatctc	ttgagtcagg	360
atgaaaatac	actaatggac	catcagcaca	gtaactccat	ggacaattta	gacagtgagt	420
gcagtggagt	ctaccagccc	ctcacatcga	gcgatgatgc	gctggatgca	cacatctctc	480
tctcagagtc	ggaaggcatc	tctcagcata	gagcgctccc	ggaaggggag	cagcgggaat	540
gccagtgaag	tgtccgtggc	tctgcctgac	ttnacgcata	caccagatgg	nagagaacca	600
acacagtaca	agtgaggggac	tccaggcaac	cctgcaagag	ctagctgatt	tacagcagat	660
taccaggaa	ctgaatagt	aaaacgaaa	gcttgaggaa	gagaagggtta	ttctgatgga	720
gtctttatgt	cagcagagcg	ataagtggga	acacttttagt	cgacagattg	aatacttccg	780
ctctcttcta	gatgagcatc	acatttctta	tgtcatagat	gaagatgtaa	aaagtgggag	840
ctatatggma	ttagagcaac	gttacatgga	cctcgctgag	aatgcccgtt	ttgaacggga	900
gcagcttctt	ggtgtccagc	agcatttaag	caatactttg	aaaatggcag	aacaagacaa	960
taaggaaagt	caagaaatga	tagggggcact	caaagaacgc	agtcaccata	tggagcgaat	1020
tattgagtct	gagcagaaa	gaaaagcagc	cttggcagcc	acgttagagg	aatacaaaagc	1080
cacagtggcc	agtgaccaga	tagagatgaa	tgcctgaag	gctcagctgg	agaatgacaa	1140
gcagaaaagt	gcagagctgt	attctatcca	taactctgga	gacacatctg	atattcagga	1200
cctcctggag	agtgtcaggg	tggacaaa	aaaagcagag	actttggcta	gtagcttgca	1260
ggaagatctg	gctcataccc	gacatgatgc	caatcgatta	caggatgcca	ttgctaggta	1320
gaggatgata	ccgagcctcc	aagaagagct	agaacaaatt	ga		1362

&lt;210&gt; 678

&lt;211&gt; 1771

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 678

agccagcggc	agcaggctga	gctcccaggc	tgacatctgg	gcagggctga	tgggcagctt	60
ctggccatct	ggtgaccagg	tgtgcccga	gtwktwwkta	tatgcacagc	ccctttccta	120
ataaccacaca	ttctaggtta	cgtagacacg	ttaaactcct	attctagaac	atcgtgcttg	180
aatgcagacc	cctcagccca	caatcgggct	ggctgggctt	cctgtgagcc	ctcattgcat	240
ccagtctgtg	gggcagtgc	cccgtttcca	ctgggtggctg	gtcttctca	tgggtgctatg	300
cagggtgcaa	acacagttat	attctcaaag	gtacaggtct	tgtctggaca	ttgttcaaac	360
caatagctac	tgcgttaggc	acacgggaga	tccctattcc	caaaaatagc	tgttgagttc	420
tggcctgaga	gcatctccag	tgaccacctt	taaataaggc	tttggttcaa	acagcatgga	480
cccagcacct	ggggagggtg	ggcacagggg	gcatggaccc	agtacctggg	gagggcgggc	540
atgggtgtag	gagacaactc	aaccactgag	tcttgagggt	cctgccttgg	ccacggaggg	600
cagtggctgc	cctcacaaga	agagtgaaga	cactttcttt	aactctgtcc	taggagaatt	660
atgtgttagt	gactcagtga	gtttaaatga	cactgcctgg	rtccctaaa	gttgtttact	720
tttstcctat	tttgtgcktt	awtccttgct	ctcaccatgc	taatgtacag	atgttgttta	780
gattttctatg	cttattgaaa	caatgtaact	gtgggactaa	cagaacagga	gcgacctgtg	840
ccagcattgc	tcgtaacaaa	acaaaaatgt	taactagaaa	aactccttat	gatgaagaaa	900
tctaaagcca	gagctgggac	tccaaacccc	ttccagggtg	gaagacaggt	cgctgagtc	960
aggcaagggg	cccccgtaac	tgtctcccgc	cagaaagccc	agccgcgtga	gtkcagcagc	1020
agcaccacag	ccctggcggtg	gccgcaccac	ggcctctaga	tactcttcta	gctcaggctg	1080
aacacgcctg	gattgtgtcg	gccgggacag	ccccgtcagt	gtggggcagc	tgaccacagt	1140
ctgtgtgaac	atgtctctcc	aaactaggac	ggtgaagggc	ccagggcgct	gggaactgcc	1200
aggcgctgac	tctcttctg	ggttctcacc	agcaccggaa	cccaccccag	ccaatagtca	1260
ggaagtgcg	cggccgagcc	ttcatcaacc	ctagttagtt	tcccacagaa	ctgaatccct	1320
tttcccaaat	tcagctgtgc	atgagccctt	tttgtttggt	gcctggagc	actagtgtag	1380
ttcaatatct	tcttcagaag	gaaaactcca	gcagccaccg	gcctgcagga	tgtgtgctga	1440

gcccacatga	cctgaatgga	cggtcatgt	gggaggggcc	ctggtgggag	ctgtggggcca	1500
cacggctgag	ttcttccaat	acggaagccc	cgagctggag	gctcacacgc	tgtggggcag	1560
cccagagttg	ctggaagctt	tacaggggtg	cgtagctaat	ggcgtcgggt	tcgctcggtc	1620
gctgtggagg	ggtaccccg	tattggggcg	gctcctcccg	gcatgctcag	gtctcaaagt	1680
acttgtagat	cgcgtcacat	acagtatcac	gttctgccag	tcgggtcggt	cagtcctgtac	1740
catttcatta	atgtccagt	tggtttgat	g			1771

&lt;210&gt; 679

&lt;211&gt; 1367

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 679

ctagtggatc	caaagaattc	ggcacgagga	aacaagagcc	ctgaaagatg	aaatagatgt	60
tcttagggct	acctctgata	aagcaaataa	actggagtca	acagttgaga	tatatcgtca	120
gaagctacaa	gatctgaatg	accttcgcaa	gcagggtgaaa	actttacagg	aaaccaacat	180
gatgtatatg	cataatacag	tcagcttaga	agaagaatta	aaaaaagcaa	atgcagcacg	240
tacacaatta	gaacatacag	aaaggcaggt	tcaagatcct	catgttaaac	ttcctccga	300
atccaagagg	gcagacacac	tagcgtttga	aatgaagcgg	cttgaagaaa	aacatgaagc	360
tttacttaag	gaaaaagaga	gactaattga	gcagcgtgat	actttgaaag	aaacaaatga	420
agagcttcga	tggtcacaag	tacaacagga	ccacctaaac	caaacagatg	catctgctac	480
aaaaagttat	gagaatcttg	ctgctgagat	tatgccagt	gaatatagg	aggtgtttat	540
tcgactgcaa	catgaaaata	agatgcttcg	cttacagcaa	gaaggctctg	agaatgaacg	600
tattgaggaa	cttcaggagc	agctagaaca	gaaacacogt	aaaatgaatg	aactggaaac	660
tgagcagagg	ctgagcaaag	agcgtattag	agaattgcag	cagcagattg	aggacctcca	720
gaaatcttta	caggaacaag	gttccaagtc	tgaaggcgaa	agttccagca	aattaaagca	780
gaagttggaa	gctcatatgg	aaaaactcac	agaggtccat	gaagaattac	agaagaaaca	840
agaactcatt	gaagatcttc	agccagatat	aaatcaaat	gtacaaaaga	tcaatgaact	900
tgaagctgct	cttcagaaga	aagatgaaga	tatgaaagca	atggaggaaa	gatataaaat	960
gtacttggag	aaagccagaa	atgtaataaa	aactttggat	cccaagttaa	atccagcatc	1020
agctgaaata	atgctactaa	gaaagcagtt	ggcagagaaa	gagagaagaa	ttgagattct	1080
ggagagtga	tgcaaatgag	caaaattccg	tgattatgaa	gaaaactcat	tgttctgctg	1140
tggtataata	agagtctagc	attccagaaa	ctggggatgg	aatctagact	tgtagcggc	1200
ggtggtgct	gcagtgcac	tggtgcgtgc	actcctgcgc	ggtctttctt	agcgcagcaa	1260
cggcacatca	ccaacaccag	aagaaatctc	tctgttaaa	tcctgtctac	aacatctgat	1320
taaactgcaa	aaaaaacaaa	acaaaacaaa	aaaaaaaaaa	aaaaaac		1367

&lt;210&gt; 680

&lt;211&gt; 2545

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 680

ggatccaaag	attcggcacg	aggcggagtc	gcagcctcgg	tcccgagacc	caccttcgcc	60
tcgcccttgc	ccagcctgcg	gtgatggagg	cgccaccac	actgcacca	ggcccgcgc	120
cggcgtgcc	cctcgggggc	cggggccgc	tgggcaggtt	cctgcctcca	cccagtgcc	180
cggctctcga	accagctgg	gaagagttcg	cggaccctt	cgtttctatc	cacaagatcc	240
ggcccatagc	cgagcagact	ggcatctgta	aggtgcggcc	gccgcgggat	tggcagccac	300
catctgcag	tgatgttgat	aaacttcatt	ttacgccacg	tatccagaga	ctgaatgaat	360
tggaggccca	aactcgtgta	aaattgaatt	tcttgacca	gattgcaaag	tactgggagt	420
tacagggaag	tactctgaaa	attccacatg	tggagaggaa	gatcttgac	ttatttcagc	480
ttaataagtt	agttgcagaa	gaaggtggat	ttgcagttgt	ttgcaaggat	agaaaatgga	540
ccaaaattgc	taccaagatg	gggtttgctc	ctggcaaaag	agtgggctca	catatcagag	600
ggcattatga	acgaattctc	aaccctaca	acttattcct	gtccggagac	agcctaaggt	660
gtttgcagaa	gccaacactg	accacagaca	ctaaggacaa	ggagtacaaa	ccccatgata	720

ttccccagag	gcagtctgtg	cagccttcgg	aaacgtgccc	cccagcccga	cgagcaaaac	780
gcatgagagc	agaggccatg	aatattaaaa	tagaacccca	ggagacaaca	gaagccagaa	840
ctcataatct	gagacgtcga	atgggttgtc	caactccaaa	atgtgaaaat	gagaaaagaa	900
tgaagagtag	catcaagcaa	gaacctattg	agaggaaaga	ttatattgta	gaaaatgaga	960
aggaaaagcc	caagagtcca	tctaaaaaag	ccaccaatgc	tgtggacctg	tatgtctgtc	1020
ttttatgtgg	cagtggcaat	gatgaagacc	ggctactgtt	gtgtgatggc	tgtgatgaca	1080
gttaccatac	cttttgcttg	atcccacctc	tccatgatgt	tcccaaggga	gactggagggt	1140
gtcctaagt	tttggctcag	gaatgtagta	agccacaaga	agcatttggc	tttgaacaag	1200
cagccaggga	ctataccctc	cgtacttttg	gggaaatggc	agatgcgttc	aaatctgatt	1260
acttcaacat	gccagtccat	atggtcccca	cagagcttgt	tgagaaagaa	ttttggagac	1320
tagtaagcac	tattgaggag	gatgtcacag	tggaaatatg	agctgacatt	gcctcaaagg	1380
aatttggcag	tggctttcct	gtccgagatg	ggaaaatcaa	actctcacct	gaggaagagg	1440
agtatcttga	tagtggctgg	aatttgaaca	acatgccagt	gatggagcag	tctgtccttg	1500
cacatattac	tgtgatata	tgtggcatga	aacttccttg	gttgtatgtg	ggaatgtgct	1560
tttcttcatt	ctgttggcac	attgaagacc	actggagcta	ttcaattaac	tacttgcaat	1620
ggggtgagcc	aaaaacctgg	tatggagtcc	cagggtatgc	tgctgagcag	ctagaaaatg	1680
taatgaagaa	actagctcca	gaactctttg	tgtcccagcc	ggatctcctc	catcagcttg	1740
tgacctcat	gaaccccaat	accctgatga	ctcatgaagt	gcctgtttac	cgaactaatc	1800
agtgtgctgg	ggagtttgtg	attacatttc	caagagccta	ccacagtgtt	ttaaccaggg	1860
ttttaatttt	gctgaggctg	ttaacttctg	cactgttgat	tggctgccat	taggccgaca	1920
gtgtgtggag	cattatcgct	tgcttcacg	atattgtgtg	ttttcccatg	atgagatgat	1980
ctgcaagatg	gcttccaagg	ctgatgtatt	agatgttgta	gtggcttcaa	ctgttcagaa	2040
agacatggcc	attatgattg	aggatgagaa	agctttaaga	gaaactgtcc	gtaaattggg	2100
agtgattgat	tcggaaagaa	tggattttga	gctgttgcca	gatgatgaac	gtcagtgtgt	2160
aaaatgcaaa	actacatgct	tcatgtctgc	catctcctgt	tcttgtaaac	ctggccttct	2220
tgtttgcctg	catcatgtaa	aagaattgtg	ttcctgtcct	ccttataaat	ataaattgctg	2280
gtataggtag	acgctggatg	atctctaccc	catgatgaat	gcattgaagc	ttcgagcaga	2340
atcttacaac	gaatgggcct	tgaatgtgaa	tgaagctttg	gaggcaagaa	tcaacaagaa	2400
gaaaagtatg	tgatacagaa	agtgaacttg	tgattggcaa	attggggcct	attgtgatgt	2460
agccaaatta	aagtcaacaa	aacattaaaa	aaaaaaaaaa	aaaactcgag	agtacttcta	2520
gagcgccgag	ggcccatcga	ttttc				2545

&lt;210&gt; 681

&lt;211&gt; 1745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 681

ctagtggatc	caaagaattc	ggcacgaggg	aagatggctt	cgtttcggaa	gctaacgctt	60
tctgaaaaag	tgccgccaaa	tcateccagt	cggaaaaagg	ttacttcct	agatatgtct	120
ctagacgaca	ttataatcta	taaagagtta	gaagggacaa	atgctgaaga	agaaaagaat	180
aaaagacaga	accatagtaa	aaaggaatcg	ccttcaagac	agcaatcaaa	agctcataga	240
catcgccatc	ggagaggcta	ctcaagatgc	agaagcaact	ctgaggaagg	aaatcatgat	300
aaaaaaccat	cccaaaaacc	ttctggattc	aagtctggac	aacacccttt	aatggggcag	360
cctttaattg	agcaggagaa	gtgcagtgc	aattatgagg	cccaagcaga	gaagaatcaa	420
ggccagtcag	aggggaacca	gcataatca	gaaggaaatc	cggacaaatc	agaagaatcc	480
caggggccaac	cagaagaaaa	tcateattct	gagcgatccc	gaaaccactt	agagagatct	540
ctttctcagt	cagacagatc	tcaagggcag	ctaaagagac	atcatcccca	atatgagaga	600
tctcatggcc	aatacaagag	atctcatggt	caatctgaga	gatctcatgg	ccactcagag	660
agatctcatg	gtcactcaga	gagatctcat	ggctactcag	agagatctca	tggctactca	720
aagagatctc	gtagccaggg	agatcttgtg	gacactcaga	gtgatctcat	agccactcag	780
agagatctca	tagccactca	gaaagatctc	atagccactc	agagagatct	catagccact	840
cagagagatc	tcatagtcac	tcagagagat	ctcgtggcca	ctgagagaga	tctcataaat	900
cagtcaggga	gatctcatgg	ccaatcagaa	agacatcaga	gatactcaac	aggtaaaaaat	960
acaataacta	cttaatcatc	agaacaatgt	gttgaattct	gtggaaatag	aaaagcatat	1020

atctatat	taatggctaa	atatgtattt	gttgaaacat	gtatat	ttggg	acaaagacat	1080
aaatattaga	atggaggtaa	tacatacata	gtatcaatat	tgtttcaact	tgatgtcctc		1140
taagctatca	tccagttacc	caagatgtcc	cattaagttg	ttcccggtag	gtctgcttcc		1200
cctggaagag	ccgtatgtac	tcagcctttc	ctattgggcc	ttccccacaa	ttagaatatt		1260
ttgacttagt	gtcctgtccc	ccttggacgt	tccaacttga	cttagtgtcc	agtgtcccctt		1320
ggacattcca	acctggtagg	taagctaata	taacaactaa	ctgtccaaatt	gataatatat		1380
aatctatgat	aatgaatatc	tcttttgtgt	ctccttccca	agccatccctc	agagagtccct		1440
tagcagacaa	atggtagatg	tatctttggg	cagctgaact	tttctgcttt	cctcaaatca		1500
gaccatatga	gaggatatat	tctatgcata	gatgtaatgc	taaccttctg	aatatatattt		1560
gaatacattt	atatattcac	tggtgcctta	taaaactgtt	agggtaggtc	tgtctaccct		1620
agcaaaagaa	acacagaaat	ttaaatgtac	tgggagttat	kkkkttaaaa	acacaagata		1680
tgttaaactgc	agtttgtttg	gttattcaat	aaaagtttta	gttttaaaaa	aaaaaaaaaa		1740
aaaac							1745

&lt;210&gt; 682

&lt;211&gt; 1745

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 682

ctagtggatc	caaagaattc	ggcacgaggg	aagatggcct	cgtttcggaa	gctaacgctt	60	
tctgaaaaag	tgccgccaaa	tcataccagt	cggaaaaagg	ttacttcct	agatatgtct	120	
ctagacgaca	ttataatcta	taaagagtta	gaagggacaa	atgctgaaga	agaaaagaat	180	
aaaagacaga	accatagtaa	aaaggaatcg	ccttcaagac	agcaatcaaa	agctcataga	240	
catcgccatc	ggagaggcta	ctcaagatgc	agaagcaact	ctgaggaagg	aatcatgat	300	
aaaaaacat	cccaaaaacc	ttctggatc	aagtctggac	aacacccttt	aaatgggcag	360	
cctttaattg	agcaggagaa	gtgcagtgc	aattatgagg	cccaagcaga	gaagaatcaa	420	
ggccagtcag	aggggaacca	gcatcaatca	gaaggaaatc	cggacaaatc	agaagaatcc	480	
cagggccaac	cagaagaaaa	tcatcattct	gagcgatccc	gaaaccactt	agagagatct	540	
ctttctcagt	cagacagatc	tcaagggcag	ctaaagagac	atcatcccca	atatgagaga	600	
tctcatggcc	aatacaagag	atctcatggt	caatctgaga	gatctcatgg	ccactcagag	660	
agatctcatg	gtcactcaga	gagatctcat	ggcactcag	agagatctca	tggtcactca	720	
aagagatctc	gtagccaggg	agatcttgtg	gacactcaga	gtgatctcat	agccactcag	780	
agagatctca	tageccactca	gaaagatctc	atagccactc	agagagatct	catagccact	840	
cagagagatc	tcatagtcac	tcagagagat	ctcgtggcca	ctgagagaga	tctcataaat	900	
cagtcaggga	gatctcatgg	ccaatcagaa	agacatcaga	gatactcaac	aggtaaaaat	960	
acaataacta	cttaatcatc	agaacaatgt	gttgaattct	gtggaaatag	aaaagcatat	1020	
atctatat	taatggctaa	atatgtattt	gttgaaacat	gtatat	ttggg	acaaagacat	1080
aaatattaga	atggaggtaa	tacatacata	gtatcaatat	tgtttcaact	tgatgtcctc		1140
taagctatca	tccagttacc	caagatgtcc	cattaagttg	ttcccggtag	gtctgcttcc		1200
cctggaagag	ccgtatgtac	tcagcctttc	ctattgggcc	ttccccacaa	ttagaatatt		1260
ttgacttagt	gtcctgtccc	ccttggacgt	tccaacttga	cttagtgtcc	agtgtcccctt		1320
ggacattcca	acctggtagg	taagctaata	taacaactaa	ctgtccaaatt	gataatatat		1380
aatctatgat	aatgaatatc	tcttttgtgt	ctccttccca	agccatccctc	agagagtccct		1440
tagcagacaa	atggtagatg	tatctttggg	cagctgaact	tttctgcttt	cctcaaatca		1500
gaccatatga	gaggatatat	tctatgcata	gatgtaatgc	taaccttctg	aatatatattt		1560
gaatacattt	atatattcac	tggtgcctta	taaaactgtt	agggtaggtc	tgtctaccct		1620
agcaaaagaa	acacagaaat	ttaaatgtac	tgggagttat	kkkkttaaaa	acacaagata		1680
tgttaaactgc	agtttgtttg	gttattcaat	aaaagtttta	gttttaaaaa	aaaaaaaaaa		1740
aaaac							1745

&lt;210&gt; 683

&lt;211&gt; 3127

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

<400> 683						
gaattcggca	cgaggggtcag	caattgctta	gggcggaatg	cgatttcggg	ggaggaggcg	60
cgggtatgta	gacagagggg	gttgggacac	accaggaggg	gaggagccag	ccccagagat	120
cgggaatcct	ctcagtcctt	agttacaagg	ctccatcctc	actttgttcg	ctcctcagtc	180
gtccaggcgg	attccttttt	cgccaggcac	caaggcacag	cttagagtag	acccgagtc	240
tgctctgcgg	agttcctctt	cccagcgaag	gtacagaggc	ggatgaactg	ctgagacttg	300
attgacgtat	tttaagattt	ttttaacttc	tgaagtctag	caggcctgta	agaacaaaaa	360
tcattctgta	ggaattaaaa	acagaatcca	gtcttgacaa	catatccaca	atgtctgatg	420
tatctactag	tgtacaatca	aaatttgata	gacttgcaaa	gaaaaaggaa	aatatcacct	480
atatgagcag	agagcagtta	acagaaactg	ataaggacat	agctccggta	ttagcattta	540
aaagtcaagg	acgtatcagc	aattatgaat	aagtttaagg	tcttaatgga	aattcaagac	600
ctgatgtttg	aggagatgag	ggaaactctt	aaaaatgacc	taaaagcagt	tttaggagga	660
aaagctacaa	tacctgaggt	aaagaattca	gagaactcca	gtagtaggca	ggtttcagca	720
aataatcaat	ttagcattac	aaaaaacagg	gatggtaggg	aaaatagaag	gagaaactct	780
aaaataggtg	atgataatga	aaatttaacc	tttaaatag	aagtaaatga	gctgagtgg	840
aaattagaca	acactaacga	atacaatagt	aatgatggta	agaaattacc	ccagggtgaa	900
tcacgaagtt	acgaagtcat	gggaagtatg	gaagaaacct	tatgcaatat	agatgacaga	960
gatcgaaatc	gcaatgtcca	tttagaattt	acagaaagag	agagtaggaa	ggatggagag	1020
gatgaatttg	tcaaaagaa	gagagaggaa	agaaaatttc	agaaattgaa	gaataaagag	1080
gaggttttaa	aagcctccag	agaagaaaaa	gtgttgatgg	atgaaggagc	agtacttacc	1140
ctggcagccg	acctttcatc	agcaaacactg	gatattagta	agcaatggag	taatgtcttc	1200
aacattctga	gagaaaaatga	ttttgaacct	aaatttctgt	gtgaagttaa	attagcattt	1260
aaatgtgatg	gtgaaataaa	gacattttca	gatctgcaaa	gccttagaaa	atgtgccagc	1320
caaaaatcct	ctatganaga	wttactgana	gatgtactcc	cacaaaagga	agaaataaat	1380
caaggaggaa	gaaaatatgg	nattcaagaa	aaaagggata	aaacccta	agactcanag	1440
catagagctg	gagaaataac	cagtgtatgg	ttgagcttcc	tatttcttaa	agaagtataa	1500
gttgctaagc	cagaggagat	gaaaaactta	gagactcaag	aggaagagtt	ttccgagcta	1560
gaggagctgg	atgaagaggc	ttcagggatg	gaggatgatg	aagataacct	agggctggag	1620
gaggaagaag	aagaagaggc	ttcaggggtg	gaggaggatg	antcctcang	gctagaggag	1680
gaagaggaac	agacttcaga	acaggactca	acctttcang	gtcatacttt	ggtagatgca	1740
aagcatgaag	ttgagataac	cagtnatggc	atggaaacta	ctttcattga	ctctgtagag	1800
gattctgaat	cagaggagga	agaggaagga	aagagctctg	aaacaggaaa	ggtaaagact	1860
acctccctga	ctgagaaaaa	agcctcacgt	agacaaaaag	aaattccctt	tagttatttg	1920
gttggggact	ctgggaagaa	aaagttgggtg	aaacaccagg	tggtgcacaa	aaccaggag	1980
gaagaggaaa	cagctgtgcc	cacaagtcaa	ggaactggca	caacctgtct	gaccttatgt	2040
ttggcctctc	cctcaaagtc	actagagatg	agtcataaaa	gcattcacat		2100
acaaatttga	gtatttcaac	aggagtcacc	aaacttaaga	aaacagaaga	aaagaaacac	2160
aggactctgc	acacagaaga	actaacatcc	aaagaagcag	acttaacaga	ggaaacagaa	2220
gaaaacttga	gaagtagtgt	gattaatagc	atcagagaga	taaaagagga	gattggaaat	2280
ttgaaaagtt	cccattcagg	tgtcttgga	attgaaaatt	cagtagatga	tctgagtagc	2340
agaatggaca	tccttgaaga	aagaatagac	agtctagaag	atcaaattga	agaattctct	2400
aaggatacaa	tgcaaatgac	caaacagata	attagtaaag	aagggccnag	agatatagag	2460
gagagatcta	gaagttgcaa	cattcgtttg	ataggaattc	cagaaaagga	gagttatgag	2520
aatagggcag	aggacataat	taaggaaata	attgatgaaa	actttgcaga	actaaagaaa	2580
ggttcaagtc	ttgagattgt	cagtgtctgt	cgagtaccta	gtaaaattga	tgaaaagaga	2640
ctgactccta	gacacatctt	ggtgaaattt	tggaattcta	gtgataaaga	gaaaataata	2700
aggccttcta	gagagagaag	agaaattacc	taccaaggaa	caagaatcag	gttgacagca	2760
gacttctcac	tggaacacact	ggatgctaga	agtaaatgga	gcaatgtctt	caaagttctg	2820
ctggaaaaag	gctttaaccc	tagaacctta	tacccagcca	aaatggcatt	tgattttagg	2880
ggtaaaaacaa	aggtattcct	tagtattgaa	gaatttagag	attatgtttt	gcatatgccc	2940
accttgagag	aattactggg	gaataatata	ccttagcacc	ccagggtgac	tacaaacaat	3000
atgctttcct	ccccagcat	gcacccaaaa	accaacaagt	aaaacgaaag	tacacttcta	3060
cccagaagga	tggacagcta	ataccgtact	tggggatgag	gagcaaggaa	tattacagat	3120
attaccc						3127



<210> 684  
 <211> 803  
 <212> PRT  
 <213> Homo Sapiens

<400> 684  
 Met Asn Lys Phe Lys Val Leu Met Glu Ile Gln Asp Leu Met Phe Glu  
 1 5 10 15  
 Glu Met Arg Glu Thr Leu Lys Asn Asp Leu Lys Ala Val Leu Gly Gly  
 20 25 30  
 Lys Ala Thr Ile Pro Glu Val Lys Asn Ser Glu Asn Ser Ser Ser Arg  
 35 40 45  
 Gln Val Ser Ala Asn Asn Gln Phe Ser Ile Thr Lys Asn Arg Asp Gly  
 50 55 60  
 Arg Glu Asn Arg Arg Arg Asn Ser Lys Ile Gly Asp Asp Asn Glu Asn  
 65 70 75 80  
 Leu Thr Phe Lys Leu Glu Val Asn Glu Leu Ser Gly Lys Leu Asp Asn  
 85 90 95  
 Thr Asn Glu Tyr Asn Ser Asn Asp Gly Lys Lys Leu Pro Gln Gly Glu  
 100 105 110  
 Ser Arg Ser Tyr Glu Val Met Gly Ser Met Glu Glu Thr Leu Cys Asn  
 115 120 125  
 Ile Asp Asp Arg Asp Gly Asn Arg Asn Val His Leu Glu Phe Thr Glu  
 130 135 140  
 Arg Glu Ser Arg Lys Asp Gly Glu Asp Glu Phe Val Lys Glu Met Arg  
 145 150 155 160  
 Glu Glu Arg Lys Phe Gln Lys Leu Lys Asn Lys Glu Glu Val Leu Lys  
 165 170 175  
 Ala Ser Arg Glu Glu Lys Val Leu Met Asp Glu Gly Ala Val Leu Thr  
 180 185 190  
 Leu Ala Ala Asp Leu Ser Ser Ala Thr Leu Asp Ile Ser Lys Gln Trp  
 195 200 205  
 Ser Asn Val Phe Asn Ile Leu Arg Glu Asn Asp Phe Glu Pro Lys Phe  
 210 215 220  
 Leu Cys Glu Val Lys Leu Ala Phe Lys Cys Asp Gly Glu Ile Lys Thr  
 225 230 235 240  
 Phe Ser Asp Leu Gln Ser Leu Arg Lys Phe Ala Ser Gln Lys Ser Ser  
 245 250 255  
 Met Xaa Xaa Leu Leu Xaa Asp Val Leu Pro Gln Lys Glu Glu Ile Asn  
 260 265 270  
 Gln Gly Gly Arg Lys Tyr Gly Ile Gln Glu Lys Arg Asp Lys Thr Leu  
 275 280 285  
 Ile Asp Ser Xaa His Arg Ala Gly Glu Ile Thr Ser Asp Gly Leu Ser  
 290 295 300  
 Phe Leu Phe Leu Lys Glu Val Lys Val Ala Lys Pro Glu Glu Met Lys  
 305 310 315 320  
 Asn Leu Glu Thr Gln Glu Glu Glu Phe Ser Glu Leu Glu Glu Leu Asp  
 325 330 335  
 Glu Glu Ala Ser Gly Met Glu Asp Asp Glu Asp Thr Ser Gly Leu Glu  
 340 345 350  
 Glu Glu Glu Glu Glu Glu Ala Ser Gly Leu Glu Glu Asp Xaa Ser Ser  
 355 360 365  
 Xaa Leu Glu Glu Glu Glu Glu Gln Thr Ser Glu Gln Asp Ser Thr Phe  
 370 375 380  
 Xaa Gly His Thr Leu Val Asp Ala Lys His Glu Val Glu Ile Thr Ser

385                                      390                                      395                                      400  
 Xaa Gly Met Glu Thr Thr Phe Ile Asp Ser Val Glu Asp Ser Glu Ser  
    405                                      410                                      415  
 Glu Glu Glu Glu Glu Gly Lys Ser Ser Glu Thr Gly Lys Val Lys Thr  
    420                                      425                                      430  
 Thr Ser Leu Thr Glu Lys Lys Ala Ser Arg Arg Gln Lys Glu Ile Pro  
    435                                      440                                      445  
 Phe Ser Tyr Leu Val Gly Asp Ser Gly Lys Lys Lys Leu Val Lys His  
    450                                      455                                      460  
 Gln Val Val His Lys Thr Gln Glu Glu Glu Glu Thr Ala Val Pro Thr  
 465                                      470                                      475                                      480  
 Ser Gln Gly Thr Gly Thr Thr Cys Leu Thr Leu Cys Leu Ala Ser Pro  
    485                                      490                                      495  
 Ser Lys Ser Leu Glu Met Ser His Asp Glu His Lys Lys His Ser His  
    500                                      505                                      510  
 Thr Asn Leu Ser Ile Ser Thr Gly Val Thr Lys Leu Lys Lys Thr Glu  
    515                                      520                                      525  
 Glu Lys Lys His Arg Thr Leu His Thr Glu Glu Leu Thr Ser Lys Glu  
    530                                      535                                      540  
 Ala Asp Leu Thr Glu Glu Thr Glu Glu Asn Leu Arg Ser Ser Val Ile  
 545                                      550                                      555                                      560  
 Asn Ser Ile Arg Glu Ile Lys Glu Glu Ile Gly Asn Leu Lys Ser Ser  
    565                                      570                                      575  
 His Ser Gly Val Leu Glu Ile Glu Asn Ser Val Asp Asp Leu Ser Ser  
    580                                      585                                      590  
 Arg Met Asp Ile Leu Glu Glu Arg Ile Asp Ser Leu Glu Asp Gln Ile  
    595                                      600                                      605  
 Glu Glu Phe Ser Lys Asp Thr Met Gln Met Thr Lys Gln Ile Ile Ser  
    610                                      615                                      620  
 Lys Glu Gly Pro Arg Asp Ile Glu Glu Arg Ser Arg Ser Cys Asn Ile  
 625                                      630                                      635                                      640  
 Arg Leu Ile Gly Ile Pro Glu Lys Glu Ser Tyr Glu Asn Arg Ala Glu  
    645                                      650                                      655  
 Asp Ile Ile Lys Glu Ile Ile Asp Glu Asn Phe Ala Glu Leu Lys Lys  
    660                                      665                                      670  
 Gly Ser Ser Leu Glu Ile Val Ser Ala Cys Arg Val Pro Ser Lys Ile  
    675                                      680                                      685  
 Asp Glu Lys Arg Leu Thr Pro Arg His Ile Leu Val Lys Phe Trp Asn  
    690                                      695                                      700  
 Ser Ser Asp Lys Glu Lys Ile Ile Arg Pro Ser Arg Glu Arg Arg Glu  
 705                                      710                                      715                                      720  
 Ile Thr Tyr Gln Gly Thr Arg Ile Arg Leu Thr Ala Asp Leu Ser Leu  
    725                                      730                                      735  
 Asp Thr Leu Asp Ala Arg Ser Lys Trp Ser Asn Val Phe Lys Val Leu  
    740                                      745                                      750  
 Leu Glu Lys Gly Phe Asn Pro Arg Thr Leu Tyr Pro Ala Lys Met Ala  
    755                                      760                                      765  
 Phe Asp Phe Arg Gly Lys Thr Lys Val Phe Leu Ser Ile Glu Glu Phe  
    770                                      775                                      780  
 Arg Asp Tyr Val Leu His Met Pro Thr Leu Arg Glu Leu Leu Gly Asn  
 785                                      790                                      795                                      800  
 Asn Ile Pro

&lt;210&gt; 685

<211> 947  
 <212> PRT  
 <213> Homo Sapiens

<400> 685  
 Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro  
 1 5 10 15  
 Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu  
 20 25 30  
 Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe  
 35 40 45  
 Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Lys Leu Pro  
 50 55 60  
 Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys  
 65 70 75 80  
 Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu  
 85 90 95  
 Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly  
 100 105 110  
 Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln  
 115 120 125  
 Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu  
 130 135 140  
 Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys  
 145 150 155 160  
 Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu  
 165 170 175  
 Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val  
 180 185 190  
 Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln Val Thr  
 195 200 205  
 Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Ala Thr Ser Ala  
 210 215 220  
 Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys Ser Val  
 225 230 235 240  
 Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu Pro Asp  
 245 250 255  
 Ser Gln Gln Gln Tyr Asn Val Val Glu Thr Val Lys Val Thr Glu Gln  
 260 265 270  
 Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys Lys His  
 275 280 285  
 Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn Ala Leu  
 290 295 300  
 Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp Leu Gly  
 305 310 315 320  
 Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala Tyr Ser  
 325 330 335  
 Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys Tyr Asn  
 340 345 350  
 Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln Asp Val  
 355 360 365  
 Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu Ser Met  
 370 375 380  
 Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly Arg Glu  
 385 390 395 400

Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp Ser Glu  
 405 410 415  
 Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu Lys Ala  
 420 425 430  
 Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro Phe Arg Lys Leu  
 435 440 445  
 Asn Lys Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Lys Glu Lys Val  
 450 455 460  
 Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu Gln Met Arg Leu  
 465 470 475 480  
 Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg Lys Gln Gln Phe  
 485 490 495  
 Ile Gly Leu Lys Ser Glu Asp Glu Asp Asn Ala Lys Pro Met Asn Tyr  
 500 505 510  
 Asp Glu Lys Arg Gln Leu Ser Leu Asn Ile Asn Lys Leu Pro Gly Asp  
 515 520 525  
 Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro Ser Leu  
 530 535 540  
 Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys  
 545 550 555 560  
 Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser Ala Cys Leu Arg  
 565 570 575  
 Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met Met Ser Lys Glu  
 580 585 590  
 Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys Arg Leu Leu Asp  
 595 600 605  
 Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr Lys Ser Asp Lys  
 610 615 620  
 Thr Gln Pro Ser Lys Ala Val Glu Asn Val Ser Arg Leu Ser Glu Ser  
 625 630 635 640  
 Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser Ser Ser Ser Asp  
 645 650 655  


---

 Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu Met Phe Pro Lys  
 660 665 670  
 Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys Glu His Val Lys  
 675 680 685  
 Lys Met Lys Asn Glu Cys Ile Leu Pro Glu Gly Arg Thr Gly Val Thr  
 690 695 700  
 Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala Asn Thr Thr Leu  
 705 710 715 720  
 Val His Gln Thr Thr Pro Ser His Val Met Pro Pro Asn His His Gln  
 725 730 735  
 Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln Thr Val Lys Asn  
 740 745 750  
 Ile Ser Pro Leu Gln Ile Leu Pro Pro Ser Gly Asp Ser Glu Gln Leu  
 755 760 765  
 Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp Ser Asp Thr Thr  
 770 775 780  
 Met Leu Glu Ser Glu Cys Gln Ala Pro Val Gln Lys Asp Ile Lys Ile  
 785 790 795 800  
 Lys Asn Ala Asp Ser Trp Lys Ser Leu Gly Lys Pro Val Lys Pro Ser  
 805 810 815  
 Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln Phe Arg Lys Ala  
 820 825 830  
 Ala Ile Glu Lys Glu Val Lys Ala Arg Thr Gln Glu Leu Ile Arg Lys

835                      840                      845  
 His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser Gln Glu Asn Gln  
 850                      855                      860  
 Arg Asp Leu Gly Asn Gly Leu Thr Val Glu Ser Phe Ser Asn Lys Ile  
 865                      870                      875                      880  
 Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His Pro Gln Ser Ser  
 885                      890                      895  
 Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys Asp Arg Asp Leu  
 900                      905                      910  
 Ala Arg Pro Lys Glu Gln Glu Arg Arg Arg Arg Glu Ala Met Val Gly  
 915                      920                      925  
 Thr Ile Asp Met Thr Leu Gln Ser Asp Ile Met Thr Met Phe Glu Asn  
 930                      935                      940  
 Asn Phe Asp  
 945

<210> 686  
 <211> 3106  
 <212> DNA  
 <213> Homo Sapiens

<400> 686  
 gtggcaagat gttcctggga ggtcaagtta agagtcaaaa ataattcatt agattttaaca 60  
 atttagcatg gacatgtact tgtagacagg attcaaagca gttaagaatg tctctgccaa 120  
 gtcgacaaac agctattatt gtttaaccctc ctccaccaga atatataaat actaagaaaa 180  
 atgggcgatt gacaaatcaa cttcagtcac tacaaaaagt tgcctctaaag gatttatgga 240  
 agcatagttt ttcattggccc tttcaacgtc ctgtggatgc tgtgaaacta aagttgcctg 300  
 attattatac cattataaaa aaccctaatgg atttaaatac aattaagaag cgcttgagga 360  
 ataaatatta tgcgaaggct tcagaatgta tagaagactt caatacaatg ttctcaaatt 420  
 gttatttata taacaagcct ggagatgaca ttgttcttat ggcacaagct ctagagaagc 480  
 tgtttatgca gaaattatct cagatgccac aagaagagca agttgtgggt gtttaaggaaa 540  
 gaatcaagaa aggcactcaa cagaatatag ctgtttcttc tgctaaagaa aaatcatcac 600  
 ccagcgcaac agaaaaagta ttaagcagc aagaaattcc ttctgtattt cctaagacat 660  
 ctatttctcc cttgaacgtg gtacagggag cttcagtcac ctccagttca caaactgcgg 720  
 cccaagttac aaaaggtgtg aagaggaaag cagatacaac aactcctgca acttcagcag 780  
 ttaaagcaag tagtgaattt tctccaacat tcacagaaaa atcagtggca ctgccacct 840  
 taaaagaaaa tatgccaag aatgttttgc cagattctca gcaacaatat aatgttgttg 900  
 agactgttaa agtaactgaa caattaaggc actgtagtga gattcttaaa gaaatgcttg 960  
 caaagaaaca tttttcatat gcatggccct ttataatcc tgttgacgtt aatgctttgg 1020  
 gactccataa ctactatgac gttgtcaaaa atccgatgga tcttggaact attaaggaga 1080  
 aatggataa ccaagaatat aaggatgcat actcatttgc ggcagatgtt agattaatgt 1140  
 tcatgaattg ctacaagtac aatcctccag atcacgaag tgtgacaatg gcaagaatgc 1200  
 ttcaggatgt tttcgaaacg catttttcaa agatcccgat tgaacctgtt gagagtatgc 1260  
 ctttatgtta catcaaaaca gatatcacag aaacctgtg tagagagaac actaatgaag 1320  
 cctcctctga agggaactct tctgatgatt ctgaagatga gcgagttaag cgtcttgcaa 1380  
 agcttcagga gcagcttaaa gctgtacatc aacagctcca ggttttgtcc caagtacctt 1440  
 tccgtaagct aaataaaaag aaagagaagt ctaaaaagga aaagaaaaaa gaaaagggtta 1500  
 ataacagcaa tgaaaatcca agaaaaatgt gtgagcaaat gaggctaaag gaaaagtcca 1560  
 agagaaatca gccaaagaaa aggaacaac agttcattgg tctaaaatct gaagatgaag 1620  
 ataagtctaa acctatgaac tatgatgaga aaaggcagtt aagtctgaat ataaacaaac 1680  
 tccctggaga taaacttggg cgagtagttc acataatata atcaagagag ccttctctga 1740  
 gcaattccaa tcttgatgag atagagatag actttgaaac actgaaagca tcaacactaa 1800  
 gagaattaga aaaatatgtt tcggcatgtc taagaaagag accattaaaa cctcctgcta 1860  
 agaaaataat gatgtccaaa gaagaacttc actcacagaa aaaacaggaa ttggaaaagc 1920  
 ggttactgga tgttaataat cagttaaatt ctagaaaacg tcaaacaaaa tctgataaaa 1980

cgcaaccatc	caaagctgtt	gaaaatgttt	cccgactgag	tgagagcagc	agcagcagca	2040
gcagctcatc	agagctgtaa	agtagcagca	gtgacttaag	ctcttcagac	agcagtgatt	2100
ctgaatcaga	aatgttccct	aagtttacag	aagtaaaacc	aatgattctt	ccttctaaag	2160
agcatgtaaa	gaaaatgaag	aatgaatgca	tactgcctga	aggaagaaca	ggcgtcacac	2220
agataggata	ttgtgtgcaa	gacacaacct	ctgccaatat	tacccttgtt	catcagacca	2280
caccttcaca	tgtaatgcca	ccaaatcacc	accaattagc	atttaattat	caagaattag	2340
aacattttaca	gactgtgaaa	aacattttcac	ctttacaaat	tctgcctccc	tcagggtgatt	2400
ctgaacagct	ctcaaattggc	ataactgtga	tgcatccatc	tggtgatagt	gacacaacga	2460
tgttagaatc	tgaatgtcaa	gctcctgtac	agaaggatat	aaagattaag	aatgcagatt	2520
catggaaaag	tttaggcaaa	ccagtgaaac	catcagggtg	aatgaaatcc	tcagatgagc	2580
tcttcaacca	atthagaaaa	gcagccatag	aaaagggaagt	aaaagctcgg	acacaggaac	2640
tcatacggaa	gcatttgga	caaaatacaa	aggaactaaa	agcatctcaa	gaaaatcaga	2700
gggatcttgg	gaatggattg	actgtagaat	ctttttcaaa	taaaatacaa	aacaagtgtt	2760
ctggagaaga	gcagaaagaa	catccgcagt	catcagaagc	tcaagataaa	tccaaactct	2820
ggcttctcaa	agaccgtgat	ttagccaggc	cgaaagaaca	agagaggagg	aggagagaag	2880
ccatggtggg	taccattgat	atgacccttc	aaagtgcacat	tatgacaatg	tttgaaaaca	2940
actttgatta	aaactcagtt	tttaaatata	ccatccactt	aaaatgaatg	gtaaaagatc	3000
aaaatgcata	tggtaaaatg	attgctttca	gataacaaga	taccaatctt	atattgtatt	3060
ttgactgctc	taaaatgatt	aaacagtttt	cacttacaaa	aaaaaa		3106

&lt;210&gt; 687

&lt;211&gt; 1759

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 687

gtcactccgc	aattagacag	ctaagagatc	tgtgttactt	ccctcacata	tataaataat	60
tttaaataaa	aatcatggcg	tgaataattt	ctttcctcta	ccgatttgaa	gctatccatt	120
tggaagacca	ctctgaagag	atgaaataag	tcttctgcc	aagattactt	attaattttac	180
aaggaaaagg	ggaagttttg	ttcctctccg	tgaatttgat	tgaaaatcga	gggctttctc	240
gaatagtttt	ggcatccagg	gtcatttttc	attaaaaaga	gaaaagtcat	gtcaaataatg	300
aatttccgca	gattattcag	cactagaccc	tgggagattc	tgtaaagagg	ggttttgtta	360
tactcaactt	ttccgggtaa	aacaaacaca	aatactcctc	ctccaagggg	cgggggcggt	420
gcctaggtga	tgaccaatc	acagcgcgcc	ctaccctata	taagccccga	ggccgcccgg	480
gtgtttcatg	cttttcgctg	gttattacat	cttgcgtttc	tctgttggtt	tgtctgaaac	540
cgtgcctgca	gcttctgcc	gtgctggtct	agccgctatg	gagaaacttc	caaccaagaa	600
gcgagggagg	aagccggctg	gcttgataag	tgcaagtcgc	aaagtgccga	acctctctgt	660
gtccaagtgt	atcacgagg	ccctttcagt	gtcacaggaa	cgagtaggta	tgtctttggg	720
tgcgctcaag	aaggcattgg	ccgctgctgg	ctacgacgta	gagaagaata	acagccgcac	780
caaaactgtcc	ctcaagagct	tagtgaacaa	gggaatcctg	gtgcaaacca	ggggtactgg	840
tgcttccggg	tcctttaagc	ttagtaagaa	gggtattcct	aaatctacac	gaagcaaggc	900
taaaaagtca	gtttctgcca	agaccaagaa	gctgggttta	tccagggact	ccaagtcacc	960
aaagactgct	aaaaccaata	agagagccaa	gaagccgaga	gcgacaactc	ctaaaactgt	1020
taggagcggg	agaaaggcta	aaggagccaa	gggtaagcaa	cagcagaaga	gcccagtgaa	1080
ggcaaggggt	tcgaagtcaa	aattgaccca	acatcatgaa	gttaatgtta	gaaaggccac	1140
atctaagaag	taaagagctt	tccgggaggc	caatttgga	agaacccaaa	ggctctttta	1200
agagccaccc	acattatttt	aagatggcgt	aacactggaa	acaagtctct	gtgacagtta	1260
tctataggtt	taagtgtgta	tgagctgag	ttgaaaaggc	ttgagattgg	agaattaatt	1320
caggccaggc	ttcaagacca	tcctgggcaa	catagccaga	ctaccatcta	taccaggggt	1380
cctcattccc	ccggccaccg	accggtaacc	ggctcctgtc	catggcacgt	tatgaattga	1440
gccgcacagc	tgaggggtga	gcgaacatta	accaactgag	ctccaccgcc	tgtcagggtta	1500
gctgcagcat	tagatagatt	ctcataagct	caaactgtat	tgtgaatggc	acatgcaagg	1560
gatctaggtt	tcaggctcct	tgtgacaatc	taatgcctga	tgatctgagg	ttggagcagt	1620
tttagtccgg	aaatcattgc	tcccagcccc	tgcaccccct	ggctccgtgg	ataattgtct	1680
tacacaaaacg	gtctcttgtg	tcaaaaagg	tggagactac	tggttttttac	aaaaaagtaa	1740

attagtcaag catggttg

1759

<210> 688  
 <211> 207  
 <212> PRT  
 <213> Homo Sapiens

<400> 688  
 Met Ser Glu Thr Val Pro Ala Ala Ser Ala Ser Ala Gly Leu Ala Ala  
 1 5 10 15  
 Met Glu Lys Leu Pro Thr Lys Lys Arg Gly Arg Lys Pro Ala Gly Leu  
 20 25 30  
 Ile Ser Ala Ser Arg Lys Val Pro Asn Leu Ser Val Ser Lys Leu Ile  
 35 40 45  
 Thr Glu Ala Leu Ser Val Ser Gln Glu Arg Val Gly Met Ser Leu Val  
 50 55 60  
 Ala Leu Lys Lys Ala Leu Ala Ala Gly Tyr Asp Val Glu Lys Asn  
 65 70 75 80  
 Asn Ser Arg Ile Lys Leu Ser Leu Lys Ser Leu Val Asn Lys Gly Ile  
 85 90 95  
 Leu Val Gln Thr Arg Gly Thr Gly Ala Ser Gly Ser Phe Lys Leu Ser  
 100 105 110  
 Lys Lys Val Ile Pro Lys Ser Thr Arg Ser Lys Ala Lys Lys Ser Val  
 115 120 125  
 Ser Ala Lys Thr Lys Lys Leu Val Leu Ser Arg Asp Ser Lys Ser Pro  
 130 135 140  
 Lys Thr Ala Lys Thr Asn Lys Arg Ala Lys Lys Pro Arg Ala Thr Thr  
 145 150 155 160  
 Pro Lys Thr Val Arg Ser Gly Arg Lys Ala Lys Gly Ala Lys Gly Lys  
 165 170 175  
 Gln Gln Gln Lys Ser Pro Val Lys Ala Arg Ala Ser Lys Ser Lys Leu  
 180 185 190  
 Thr Gln His His Glu Val Asn Val Arg Lys Ala Thr Ser Lys Lys  
 195 200 205

<210> 689  
 <211> 1464  
 <212> DNA  
 <213> Homo Sapiens

<400> 689  
 agtaccgggt acgcaggggt gcctcaacca cactccgtcc acggactctc cggtatttta 60  
 ggaggtccct ggccaaagat ttatttctct tgacaaccaa gggcctccgt ctggatttcc 120  
 aaggaagaat ttcctctgaa gcaccggaac ttgctactac cagcaccatg ccctaccaat 180  
 atccagcact gaccccgag cagaagaagg agctgtctga catcgctcac cgcacgtgg 240  
 cacctggcaa gggcatcctg gctgcagatg agtccactgg gagcattgcc aagcggctgc 300  
 agtccattgg caccgagaac accgaggaga accggcgctt ctaccgccag ctgctgtga 360  
 cagctgacga ccgcgtgaac ccctgcattg ggggtgtcat cctcttccat gagacactct 420  
 accagaaggc ggatgatggg cgtcccttcc cccaagttat caaatccaag ggcggtgttg 480  
 tgggcatcaa ggtagacaag ggcgtgggtcc ccctggcagg gacaaatggc gagactacca 540  
 cccaaggggt ggatgggctg tctgagcgct gtgccagta caagaaggac ggagctgact 600  
 tcgccaagtg gcgttgtgtg ctgaagattg gggaacacac cccctcagcc ctgcctatca 660  
 tggaaaatgc caatgttctg gcccgttatg ccagtatctg ccagcagaat ggcattgtgc 720  
 ccacgtgga gcctgagatc ctccctgatg gggaccatga cttgaagcgc tgccagtatg 780  
 tgaccgagaa ggtgctggct gctgtctaca aggctctgag tgaccaccac atctacctgg 840

```

aaggcacctt gctgaagccc aacatggtca ccccaggcca tgcttgact cagaagtttt 900
ctcatgagga gattgccatg gcgaccgtca cagcgctgcg ccgcacagtg ccccccgctg 960
tcaactgggat caccttcctg tctggaggcc agagtgagga ggaggcgctc atcaacctca 1020
atgccattaa caagtgcccc ctgctgaagc cctggggccct gaccttctcc tacggccgag 1080
ccctgcaggc ctctgccctg aaggcctggg gcgggaagaa ggagaacctg aaggctgcgc 1140
aggaggagta tgtcaagcga gccctggcca acagccttgc ctgtcaagga aagtacactc 1200
cgagcgggtca ggctggggct gctgccagcg agtccctctt cgtctctaac cacgcctatt 1260
aagcggaggt gttcccaggc tgccccaac aactccaggc cctgccccct cccactcttg 1320
aagaggaggc cgctctctcg ggctccagg ctggcttgcc cgcgctcttt cttccctcgt 1380
gacagtgggt tgtgggtgct tctgtgaatg ctaagtccat caccctttcc ggcacactgc 1440
caaataaaca gctatttaag gggg 1464

```

&lt;210&gt; 690

&lt;211&gt; 363

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 690

```

Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu Ser
1           5           10          15
Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala Ala
20          25          30
Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly Thr
35          40          45
Glu Asn Thr Glu Glu Asn Arg Phe Tyr Arg Gln Leu Leu Leu Thr
50          55          60
Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe His
65          70          75          80
Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln Val
85          90          95
Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly Val
100         105         110
Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu Asp
115         120         125
Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp Phe
130         135         140
Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser Ala
145         150         155         160
Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser Ile
165         170         175
Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu Pro
180         185         190
Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys Val
195         200         205
Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu Glu
210         215         220
Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys Thr
225         230         235         240
Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala Leu
245         250         255
Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser Gly
260         265         270
Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn Lys
275         280         285
Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg Ala

```



290                      295                      300  
 Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn Leu  
 305                      310                      315                      320  
 Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser Leu  
                          325                      330                      335  
 Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala Ala  
                          340                      345                      350  
 Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr  
                          355                      360

<210> 691  
 <211> 1216  
 <212> DNA  
 <213> Homo Sapiens

<400> 691  
 atgtctctcg atgtggagcc gctggagcct acacttagca acatcatcga gcagcgcagc 60  
 ctgaagtggg tcttcgctcg gggcaagggt ggtgtgggca agaccacctg cagctgcagc 120  
 ctggcagctcc agctctccaa gggcgctgag agtggtctga tcatctccac agaccagca 180  
 cacaacatct cagatgcttt tgaccagaag ttctcaaagg tgcctacca ggtcaaaggc 240  
 tatgacaacc tctttgctat ggagattgac ccagcctgg gcgtggcgga cgtgcctgac 300  
 gagttcttcg aggaggacaa catgctgagc atgggcaaga agatgatgca ggaggccatg 360  
 agcgcatttc ccggcatcga tgaggccatg agctatgccg aggtcatgag gctggtgaag 420  
 ggcataaact tctcggtggt ggtatttgac acggcaccca cgggccacac cctgaggctg 480  
 ctcaacttcc ccaccatcgt ggagcggggc ctgggcccgc ttatgcagat caagaaccag 540  
 atcagccctt tcatctcaca gatgtgcaac atgctgggccc tgggggacat gaacgcagac 600  
 cagctggcct ccaagctgga ggagacgctg ccgctcatcc gctcagtcag cgaacagttc 660  
 aaggaccctg agcagacaa tttcatctgc gtatgcattg ctgagttcct gtccctgtat 720  
 gagacagaga ggtgatcca ggagctgccc aagtgcgaaga ttgacacaca caatataatt 780  
 gtcaaccagc tcgtcttccc cgaccccag aagccctgca agatgtgtga ggcccgtcac 840  
 aagatccagg ccaagtatct ggaccagatg gaggacctgt atgaagactt ccacatcgtg 900  
 aagctgcccg tgttacccca tgagggtgagg ggggcagaca aggtcaacac cttctcggcc 960  
 ctcctcctgg agccctacaa gccccccagt gccagtagc acagctgcca gcccacaccg 1020  
 ctgccatttc aactcacc cccaccctcc ccaccccctc ggggcagagt ttgcacaaag 1080  
 tcccccccat aatacagggg gagccacttg ggcaggaggc agggaggggg ccatcccccc 1140  
 tgggtggggt ggtggggagc tgtagttgcc ccctacctct cccacctctt gctcttcaat 1200  
 aatgatctt aaactg

<210> 692  
 <211> 1958  
 <212> DNA  
 <213> Homo Sapiens

<400> 692  
 gctgctgcgc ccgcggctcc ccagtgcgcc gagtgccccg cgggccccgc gagcgggagt 60  
 gggacccagc cctaggcaga acccaggcgc cgcgcccggg acgcccgcgg agagagccac 120  
 tcccgccac gtccatttc gccctcgcg tccggagtcc ccgtggccag atctaaccat 180  
 gagctaccct ggctatcccc cgcgccaggg tggtaccaca ccagctgcac caggtggtgg 240  
 tccctgggga ggtgctgctt accctcctcc gccagcatg ccccccacatg ggctggataa 300  
 cgtggccacc tatgcggggc agttcaacca ggactatctc tcgggaatgg cggccaacat 360  
 gtctgggaca tttggaggag ccaacatgcc caacctgtac cctggggccc ctggggctgg 420  
 ctaccaccca gtgccccctg ggggctttgg gcagcccccc tctgcccagc agcctgttcc 480  
 tccctatggg atgtatccac ccccaggagg aaacccaccc tccaggatgc cctcatatcc 540  
 gccataacca gggggccctg tgccgggcca gcccatgcca cccccggac agcagccccc 600  
 aggggcctac cctgggcagc caccagtgc ctaccctggt cagcctccag tgccactccc 660

```

tgggcagcag cagccagtgc cgagctaccc aggatacccg gggctctggga ctgtcacccc 720
cgctgtgccc ccaaccaggt ttggaagccg aggcaccatc actgatgctc ccggctttga 780
ccccctgcga gatgccgagg tcctgcggaa ggccatgaaa ggcttcggga cggatgagca 840
ggccatcatt gactgcctgg ggagtcgctc caacaagcag cggcagcaga tcctacttct 900
cttcaagacg gcttacggca aggatttgat caaagatctg aaatctgaac tgtcaggaaa 960
ctttgagaag acaatcttgg ctctgatgaa gacccagtc ctctttgaca tttatgagat 1020
aaaggaagcc atcaaggggg ttggcactga tgaagcctgc ctgattgaga tcctcgcttc 1080
ccgcagcaat gagcacatcc gagaattaaa cagagcctac aaagcagaat tcaaaaagac 1140
cctggaagag gccattcgaa gcgacacatc agggcacttc cagcggctcc tcactctctt 1200
ctctcagga aaccgtgatg aaagcacaaa cgtggacatg tcactcgccc agagagatgc 1260
ccaggagctg tatgcccggc gggagaaccg cctgggaaca gacgagtcca agttcaatgc 1320
ggttctgtgc tcccggagcc gggcccacct ggtagcagtt ttcaatgagt accagagaat 1380
gacaggccgg gacattgaga agagcatctg ccgggagatg tccggggacc tggaggaggg 1440
catgtcggcc gtgggtgaaat gtctcaagaa taccacagcc ttctttgcgg agaggctcaa 1500
caaggccatg agggggggcag gaacaaagga ccggaccctg attcgcatca tgggtgtctc 1560
cagcgagacc gacctcctgg acatcagatc agagtataag cggatgtacg gcaagtctc 1620
gtaccacgac atctcgggag atacttcagg ggattaccgg aagattctgc tgaagatctg 1680
tggtggcaat gactgaacag tgactggtgg ctacttctg cccacctgcc ggcaacacca 1740
gtgccaggaa aaggccaaaa gaatgtctgt ttctaacaaa tccacaaata gccccgagat 1800
tcacctcct agagcttagg cctgtcttcc acccctctg acccgtatag tgtgccacag 1860
gacctgggtc ggtctagaac tctctcagga tgcttttct accccatccc tcacagcctc 1920
ttgctgctaa aatagatggt tcatttttct gaaaaaaa 1958

```

&lt;210&gt; 693

&lt;211&gt; 505

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 693

```

Met Ser Tyr Pro Gly Tyr Pro Pro Pro Pro Gly Gly Tyr Pro Pro Ala
 1          5          10          15
Ala Pro Gly Gly Gly Pro Trp Gly Gly Ala Ala Tyr Pro Pro Pro
20          25          30
Ser Met Pro Pro Ile Gly Leu Asp Asn Val Ala Thr Tyr Ala Gly Gln
35          40          45
Phe Asn Gln Asp Tyr Leu Ser Gly Met Ala Ala Asn Met Ser Gly Thr
50          55          60
Phe Gly Gly Ala Asn Met Pro Asn Leu Tyr Pro Gly Ala Pro Gly Ala
65          70          75          80
Gly Tyr Pro Pro Val Pro Pro Gly Gly Phe Gly Gln Pro Pro Ser Ala
85          90          95
Gln Gln Pro Val Pro Pro Tyr Gly Met Tyr Pro Pro Pro Gly Gly Asn
100          105          110
Pro Pro Ser Arg Met Pro Ser Tyr Pro Pro Tyr Pro Gly Ala Pro Val
115          120          125
Pro Gly Gln Pro Met Pro Pro Gly Gln Gln Pro Pro Gly Ala Tyr
130          135          140
Pro Gly Gln Pro Pro Val Thr Tyr Pro Gly Gln Pro Pro Val Pro Leu
145          150          155          160
Pro Gly Gln Gln Gln Pro Val Pro Ser Tyr Pro Gly Tyr Pro Gly Ser
165          170          175
Gly Thr Val Thr Pro Ala Val Pro Pro Thr Gln Phe Gly Ser Arg Gly
180          185          190
Thr Ile Thr Asp Ala Pro Gly Phe Asp Pro Leu Arg Asp Ala Glu Val
195          200          205

```

Leu Arg Lys Ala Met Lys Gly Phe Gly Thr Asp Glu Gln Ala Ile Ile  
 210 215 220  
 Asp Cys Leu Gly Ser Arg Ser Asn Lys Gln Arg Gln Gln Ile Leu Leu  
 225 230 235 240  
 Ser Phe Lys Thr Ala Tyr Gly Lys Asp Leu Ile Lys Asp Leu Lys Ser  
 245 250 255  
 Glu Leu Ser Gly Asn Phe Glu Lys Thr Ile Leu Ala Leu Met Lys Thr  
 260 265 270  
 Pro Val Leu Phe Asp Ile Tyr Glu Ile Lys Glu Ala Ile Lys Gly Val  
 275 280 285  
 Gly Thr Asp Glu Ala Cys Leu Ile Glu Ile Leu Ala Ser Arg Ser Asn  
 290 295 300  
 Glu His Ile Arg Glu Leu Asn Arg Ala Tyr Lys Ala Glu Phe Lys Lys  
 305 310 315 320  
 Thr Leu Glu Glu Ala Ile Arg Ser Asp Thr Ser Gly His Phe Gln Arg  
 325 330 335  
 Leu Leu Ile Ser Leu Ser Gln Gly Asn Arg Asp Glu Ser Thr Asn Val  
 340 345 350  
 Asp Met Ser Leu Ala Gln Arg Asp Ala Gln Glu Leu Tyr Ala Ala Gly  
 355 360 365  
 Glu Asn Arg Leu Gly Thr Asp Glu Ser Lys Phe Asn Ala Val Leu Cys  
 370 375 380  
 Ser Arg Ser Arg Ala His Leu Val Ala Val Phe Asn Glu Tyr Gln Arg  
 385 390 395 400  
 Met Thr Gly Arg Asp Ile Glu Lys Ser Ile Cys Arg Glu Met Ser Gly  
 405 410 415  
 Asp Leu Glu Glu Gly Met Leu Ala Val Val Lys Cys Leu Lys Asn Thr  
 420 425 430  
 Pro Ala Phe Phe Ala Glu Arg Leu Asn Lys Ala Met Arg Gly Ala Gly  
 435 440 445  
 Thr Lys Asp Arg Thr Leu Ile Arg Ile Met Val Ser Arg Ser Glu Thr  
 450 455 460  
 Asp Leu Leu Asp Ile Arg Ser Glu Tyr Lys Arg Met Tyr Gly Lys Ser  
 465 470 475 480  
 Leu Tyr His Asp Ile Ser Gly Asp Thr Ser Gly Asp Tyr Arg Lys Ile  
 485 490 495  
 Leu Leu Lys Ile Cys Gly Gly Asn Asp  
 500 505

&lt;210&gt; 694

&lt;211&gt; 1141

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 694

cgcagcttgc	aaatggcgtc	tcctcgcgtg	gagcggccag	aaaaaggcgc	tggaaaaagt	60
gaatttcgta	accagaagcc	gaagccggag	aaccaagatg	aatcagaact	ccttacggtt	120
cctgatgggt	ggaaggaacc	agctttttcc	aaagaggaca	atcccagagg	acttttggag	180
gagagcagtt	tcgcaacttt	gttcccaaaa	tacagggaag	cttacttgaa	agagtgttgg	240
ccattggtgc	agaaagcctt	aaatgaacat	catgttaatg	caaccctgga	cctgatcgaa	300
ggcagcatga	ctgtttgtac	tacaaagaag	acttttgcac	catatatcat	cattagggcc	360
agagatctga	taaaactgtt	agcaaggagt	gtttcatttg	aacaggcagt	acgaattctt	420
caggatgatg	ttgcatgtga	catcattaaa	ataggttctt	tagtaaggaa	taaagagaga	480
tttgtaaaac	gaagacaacg	gcttattggt	cccaaaggat	ctacattgaa	ggcattggaa	540
ctcttaacta	attgttacat	tatggttcag	ggaaacacag	tttcagccat	tggacctttt	600

```

agtggtcttaa aagagggttag aaaagtagtc cttgatacta tgaagaatat tcatccaatt      660
tataacatta aaagcttaat gattaagaga gagttggcaa aagattctga attacgatca      720
caaagttggg agagattttt gccacagttc aaacacaaaa atgtgaataa acgcaaggaa      780
ccaaagaaaa aaactgttaa gaaagatata cgccattccc accaccacaa ccagaaagtc      840
agatcgataa agaattggct agtgggtgaat actttttgaa ggcaaatacag aagaagcggc      900
agaaaatgaa gcaataaagg ctaaacaagc agaagccatc agtaagagac aagaggaaag      960
aaacaaagca ttattccac ctaaggaaaa accaattgtg aaacctagg aagcttctac     1020
tgaaactaaa attgatgtgg ccagcatcaa ggaaaagggtt aagaaagcaa agaataagaa     1080
actgggagct cttacagctg aagaaattgc acttaagatg gaggcagatg aaaaaaaaaa     1140
a                                                                                   1141

```

&lt;210&gt; 695

&lt;211&gt; 288

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 695

```

Met Ala Ser Pro Ser Leu Glu Arg Pro Glu Lys Gly Ala Gly Lys Ser
 1              5              10              15
Glu Phe Arg Asn Gln Lys Pro Lys Pro Glu Asn Gln Asp Glu Ser Glu
      20              25              30
Leu Leu Thr Val Pro Asp Gly Trp Lys Glu Pro Ala Phe Ser Lys Glu
      35              40              45
Asp Asn Pro Arg Gly Leu Leu Glu Glu Ser Ser Phe Ala Thr Leu Phe
      50              55              60
Pro Lys Tyr Arg Glu Ala Tyr Leu Lys Glu Cys Trp Pro Leu Val Gln
      65              70              75              80
Lys Ala Leu Asn Glu His His Val Asn Ala Thr Leu Asp Leu Ile Glu
      85              90              95
Gly Ser Met Thr Val Cys Thr Thr Lys Lys Thr Phe Asp Pro Tyr Ile
      100             105             110
Ile Ile Arg Ala Arg Asp Leu Ile Lys Leu Leu Ala Arg Ser Val Ser
      115             120             125
Phe Glu Gln Ala Val Arg Ile Leu Gln Asp Asp Val Ala Cys Asp Ile
      130             135             140
Ile Lys Ile Gly Ser Leu Val Arg Asn Lys Glu Arg Phe Val Lys Arg
      145             150             155             160
Arg Gln Arg Leu Ile Gly Pro Lys Gly Ser Thr Leu Lys Ala Leu Glu
      165             170             175
Leu Leu Thr Asn Cys Tyr Ile Met Val Gln Gly Asn Thr Val Ser Ala
      180             185             190
Ile Gly Pro Phe Ser Gly Leu Lys Glu Val Arg Lys Val Val Leu Asp
      195             200             205
Thr Met Lys Asn Ile His Pro Ile Tyr Asn Ile Lys Ser Leu Met Ile
      210             215             220
Lys Arg Glu Leu Ala Lys Asp Ser Glu Leu Arg Ser Gln Ser Trp Glu
      225             230             235             240
Arg Phe Leu Pro Gln Phe Lys His Lys Asn Val Asn Lys Arg Lys Glu
      245             250             255
Pro Lys Lys Lys Thr Val Lys Lys Asp Ile Arg His Ser His His His
      260             265             270
Asn Gln Lys Val Arg Ser Ile Lys Asn Trp Leu Val Val Asn Thr Phe
      275             280             285

```

&lt;210&gt; 696

&lt;211&gt; 1008

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 696

agcaggctag	gaagactgca	tcagttctta	gtaaagatga	tgtggcacct	gaaagtgggtg	60
atactacagt	gaagaaacct	gaatcaaaga	aggaacagac	cccagagcat	gggaagaaaa	120
aacgtggcag	aggaaaaagcc	caagttaaag	caacaaatga	atccgaagac	gaaatcccac	180
agctgggtacc	aataggaaaag	aagactccag	ctaataaaaa	agtagagatt	caaaaacatg	240
ccacagggaa	gaagtctcca	gcaaagagtc	ctaatacccag	cacacctcgt	gggaagaaaa	300
agaaaggctt	tgccagcatc	tgagacccca	aaagctgcag	agtctgagac	cccagggaaa	360
agcccagaga	agaagcctaa	aatcaaagaa	gaggcagtga	aggaaaaaag	tccttcgctg	420
gggaaaaaag	atgagagaca	gactcccaaa	aaagccagag	gccaaagttt	tcaccattcc	480
tagtaaatct	gtgagaaaaag	cttcccacac	ccccaaaaaa	tggcccaaaa	aacccaaagt	540
accccagtcg	acctaaagtc	agtgattcaa	ctggaaggaa	acctcaatgc	tgctccaga	600
gcttttttga	aataactcaga	tcctggccgc	ctttgtaacc	ttctctaaac	gtcaggcctg	660
gacttaaaag	attttttaaa	acctccataa	gtagtccagg	ggcggtggct	cacgcctgta	720
atcccagcac	tttgggaggc	cgaggcaggc	ggatcacaaag	gtcaacgaga	tcgagaccat	780
cctggccaac	atggtgaaac	cctgtctgta	ccaaaaatac	aaaaattaat	tgggcatggt	840
ggtggacacc	tgtaatccca	gctactaggg	aggctgaggc	aggagaattg	cttgaacctg	900
ggaggcggag	gttgacagtga	gccactgcac	tccagcctga	tgacagagca	agactcagtc	960
tcaaaaataa	ataaaaataa	taaaacctcc	ataagtaatc	ctgaaaaa		1008

&lt;210&gt; 697

&lt;211&gt; 685

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 697

acgagctgca	ctccagcctg	ggcgacagag	ggaaactcca	tctcaaaaaa	aaaaanaaaa	60
aaaaanaaaa	aagaaaaaag	anaatgccca	gcgcggtggc	taatgcctgt	aaccctagtg	120
agacagccaa	gtaaaaacgg	ctcccaagac	aatctacaag	cactgggagg	atggggtgca	180
gcacaaaaat	gttcacacca	tttgacagag	ggaacagcct	ggccccctgt	gttccaggat	240
agtaaccagg	aattcagttg	gtgagatgga	cagcctgtta	gcaggactcc	atctcacttt	300
gctgtgttgt	tctttttccc	ttttgcccaa	taaattngta	acccctcacc	tttcaaagtg	360
tctgcgtgcc	taatctttcc	ctgccatgtg	accagaaccc	ggttttgttt	acaacaccag	420
cactttggga	ggcgaagatg	ggctgattgc	ttgagctcag	gggtttaaga	acagcctggg	480
caacatagtg	aaaccctagt	ttttaccaa	aatacgaaaa	ttaaccaggc	atgcctgtta	540
tcccagctga	ggcacaagaa	tcccttgaac	ccaggaggcn	gaanncta	tnnaaccoga	600
aaatttgcnc	ccactggccc	ccccaggcgg	aagctagtga	gccgagattg	cgccactgca	660
cccctgagac	gctgtntcaa	aaaaa				685

&lt;210&gt; 698

&lt;211&gt; 1205

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 698

ggcacgaggg	tgtaggccgc	tgagggcnc	catganccgg	cttccggatg	actacgaccc	60
ctacgcggtt	gaagagccta	gcgacgagga	gccggtttg	agcagctctg	aggatgaagt	120
ggatgtgctt	ttacatggaa	ctcctgacca	aaaacgaaaa	ctcatcagag	aatgtcttac	180
cggagaaagt	gaatcatcta	gtgaagatga	atttgaaaag	gagatggaag	ctgaattaaa	240
ttctaccatg	aaaacaatgg	aggacaagtt	atcctctctg	ggaactggat	cttcctcagg	300
aaatggaaaa	gttgcaacag	ctccgacaag	gtactacgat	gatatatatt	ttgattctga	360
ttccgaggat	gaagacagag	cagtacaggt	gaccaagaaa	aaaaagaaga	aacaacacaa	420

gattccaaca	aatgacgaat	tactgtntga	tcttgaaaa	gataacagag	atcaggcctg	480
ggttgatgca	cagagaaggg	gttaccatgg	tttgggacca	cagagatcac	gtcaacaaca	540
gcctgttcca	aatagtgatg	ctgtcttgat	ttgtcctgcc	tgcatgacca	cactttgcct	600
tgattgccaa	aggcatgant	catacaaaac	tcaatataga	gcaatgtttg	taatgaattg	660
ttctattaac	aaagaggagg	ttctaagata	taaagcctca	gagaacagga	agaaaaggcg	720
ggtccataag	aagatgaggt	ctaaccggga	agatgctgcc	gagaaggcag	agacagatgt	780
ggaagaaatc	tatcaccag	tcatgtgcac	tgaatgttcc	actgaagtgg	cagtctacga	840
caaggatgaa	gtctttcatt	ttttcaatgt	tttagcaagc	cattcctaaa	cagcccaact	900
ggcatttaat	tacccaatac	tgtatataag	gcaaatatgg	acagttaact	tctctttgcc	960
tgttcatatc	cttcagtgc	attgaggaag	cagtgtttct	cttttttaaag	gagaatagtt	1020
gtcaaccttc	attcatctct	tacatctctc	accctctcct	tttttttttc	tttgattttc	1080
ccccttattg	atgggactga	tattcattct	gtttttgatg	aacatttgga	aactgtcggg	1140
ctttttatta	aagctctgta	gaattaaaat	gttctggaat	tataagcaaa	aaaaaaaaaa	1200
aaaaa						1205

&lt;210&gt; 699

&lt;211&gt; 1427

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 699

anannnctgg	agccgcgcgc	ctcgcaggtc	gacactagtg	gatccaaaga	attcggcacg	60
agcagtggta	gcaaatgaag	ccaaactgta	tcttgaaaa	cctgttggtc	ctttaaatat	120
gatgttgcca	caagctgcat	tggagactca	ttgcagtaat	atttccaatg	tgccacctac	180
aagagagata	cttcaagtct	ttcttactga	tgtacacatg	aaggaagtaa	ttcagcagtt	240
cattgatgtc	ctgagtgtag	cagtcaagaa	acgtgtcttg	tgtttaccta	gggatgaaaa	300
cctgacagca	aatgaagttt	tgaaaacgtg	tgataggaaa	gcaaatgttg	caatcctggt	360
ttctgggggc	attgattcca	tggttattgc	aaccttggct	gaccgtcata	ttcctttaga	420
tgaaccaatt	gatcttctta	atgtagcttt	catagctgaa	gaaaagacca	tgccaactac	480
ctttaacaga	gaagggaata	aacagaaaaa	taaatgtgaa	ataccttcag	aagaattctc	540
taaagatggt	gctgctgctg	ctgctgacag	tctaataaaa	catgtcagtg	taccagatcg	600
aatcacagga	agggcgggac	taaaggaact	acaagctggt	agcccttccc	gaatttggaa	660
ttttgttgaa	attaatgttt	ctatggaaga	actgcagaaa	ttaagaagaa	ctcgaatatg	720
tcacttaatt	cggccattgg	atacagtttt	ggatgatagc	attggctgtg	cagtctgggt	780
tgcttctaga	ggaattgggt	ggttagtggc	ccaggaagga	gtgaaatcct	atcagagcaa	840
tgcaaggta	gttctcactg	gaattggtgc	agatgagcaa	cttgacaggt	attctcgtca	900
tcgtgtccgc	tttcagtcgc	atgggctgga	aggattgaat	aaggaaaata	tgatggaaat	960
gggtcggaatt	tcttctagaa	atcttgggtc	tgatgacaga	gttattgggt	atcatggaaa	1020
agaagcaaga	tttcttttcc	tggatgaaaa	tggtgtctcc	tttctaaatt	ctctgccgat	1080
ttgggaaaaa	gcaaacttga	ctttaccccc	aggaattggg	gaaaaattac	ttttacgcct	1140
tgacagctgtg	gaacttggtc	ttacagcctc	tgctcttctc	gccaaacggg	ccatgcagtt	1200
tggatcaaga	attgcaaaaa	tggaaaaaat	taatgaaaag	gcatctgata	aatgtggacg	1260
gctccaaatc	atgtccttag	aaaatctttc	tattgaaaag	gagactaaat	tgtaattgtg	1320
ttcacaatgt	aacaatataa	aaataagttt	ttatataatt	atataaaaagt	aagataactct	1380
gctgctttac	tattgtataa	tatagtagtt	ttaaagttca	aaaaaaa		1427

&lt;210&gt; 700

&lt;211&gt; 1967

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 700

ggcacgaggg	aaagaggtag	gaaatgatga	aggaaaagta	attcgggtcc	attgtaaatt	60
atgcgagtgc	agctttaatg	atcccaatgc	taaggagatg	cacttaaaaag	ggcgaagaca	120
cagacttcaa	tataaaaaaa	aagtaaatcc	agattttgca	gtagaagtaa	agcctagtat	180

tcgagcaaga	aagattcaag	aagagaaaat	gaggaagcaa	atgcagaagg	aggagtactg	240
gcgaagacga	gaagaagagg	agcgttggag	aatggaaatg	agacgttatg	aagaggacat	300
gtactggagg	agaatggagg	aagaacaaca	tcattgggat	gacgcccgc	gaatgccaga	360
tggaggttat	cctcatggtc	ctccaggccc	attaggcctt	ctgggagtc	gaccaggcat	420
gcctcctcag	cctcaggggc	ctgcaccctt	acgtcgctct	gactcatctg	atgaccgttt	480
ctgggagtc	gaccaggcat	gcctcctcag	cctcaggggc	ctgcaccctt	acgtcgctct	540
gactcatctg	atgaccgtta	tgtaatgaca	aaacatgcc	ccatttatcc	aactgaagag	600
gagttacagg	cagttcagaa	aattgtttct	attactgaac	gtgctttaa	actcgtttca	660
gacagtttgt	ctgaacatga	gaagaacaag	aacaaagagg	gagatgataa	gaaagaggga	720
ggtaaagaca	gagctttgaa	aggagttttg	cgagtgggag	tatttgcaaa	agggattact	780
tctcccgagg	atagaaatgt	caaccttggt	ttgctgtgtc	agagaaacct	tcaaagacat	840
tattaagccg	tattgcagaa	aacctacca	aacagcttgc	tggtataagc	cctgagaagt	900
atgacataaa	atgtgctgta	tctgaagcgg	caataatttt	gaattcatgt	gtggaaccca	960
aatgcaagt	cactatcaca	ctgacatctc	caattattcg	agaagagaac	atgagggaag	1020
gagatgtaac	ctcgggtatg	gtgaaagacc	caccggacgt	cttgagcagg	caaaaatgcc	1080
ttgacgtctt	ggctgtctta	cgccacgcta	agtggttcca	ggctagagct	aatggtctgc	1140
agtctgtgt	gattatcata	cgcattcttc	gagacctctg	tcagcgagtt	ccaacttggg	1200
ctgattttcc	aagctggggt	atggagttac	tagtagagaa	agcaatcagc	agtgttctta	1260
gccctcagag	ccctggggat	gcaactgagaa	gagtttttga	atgcatttct	tcagggatta	1320
ttcttaaagg	tagtcctgga	cttctggatc	cttgtagaaa	ggatcccttt	gataccttgg	1380
caacaatgac	tgaccagcag	cgtgaagaca	tcacatccag	tgacagttt	gcattgagac	1440
tccttgcat	ccgccagata	cacaaagttc	taggcatgga	tccattaccg	caaatgagcc	1500
aacgttttaa	catccacaac	aacaggaaac	gaagaagaga	tagtgatgga	gttgatggat	1560
ttgaagctga	ggggaaaaaa	gacaaaaaag	attatgataa	cttttaaaaa	gtgtctgtaa	1620
atcttcagt	ttaaaaaaac	agatgcccac	ttgttggtcg	tttttcattc	ataataatgt	1680
ctacattgaa	aaatttatca	agaatttaaa	ggatttcatg	gaagaaccaa	gtttttctat	1740
gatattaaaa	aatgtacagt	gttaggtatt	atttgaatgg	aaagacacc	aaaaaaaaaa	1800
atgtgtccg	actaggggga	aaacagtagt	tccgattttt	tccattatt	tttattttat	1860
ttctgtgtg	ccctagcttc	ccccctatt	tttgtgtctt	ttattaacta	gtgcat'gtc	1920
ttattaaatc	ttcactgtat	taaaaaaaga	aaaaaaaaaa	acaaaaa		1967

&lt;210&gt; 701

&lt;211&gt; 3423

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 701

ggggaagaat	gaaatcgtgg	cgaatgtggg	gaaaagagaa	atcttgacac	atactgagaa	60
agaacaacac	acagaggaca	cagtgaagga	ttgtgtggac	atagaggtat	tcactgctgg	120
tgagaatacc	gaggaccaga	aatcctctga	agacactgcc	ccattcctag	gaaccttagc	180
agggtgtacc	tatgaggaac	aggttcaaag	ccaaattctt	gagagcgctt	ctctccctga	240
aaacacagca	caggttgagt	caaatgaggt	catgggtgca	ccagatgaca	ggaccagaac	300
tccccttgag	ccatccaact	gttgagtgga	cttagatggg	gggagccaca	cagagaatgt	360
gggagaggca	gcggtgactc	tccccttgag	ccatccaact	gttgagtgga	cttagatggg	420
gggagccaca	cagagaatgt	gggagaggca	gcagtgactc	agggtgaaga	gcaggcaggc	480
acagtggcct	cgtgtccttt	agggcatagt	gatgacacag	tttatcatga	tgacaaatgt	540
atggtagagg	tcccccaaga	gttagagaca	agcacagggc	atagtttgga	gaaagaattc	600
accaaccagg	aagcagctga	gcccaggag	gttcacgagc	acagtacaga	agtaggtagg	660
gatcacaaag	aagaagagg	tgaagaaaca	ggattaagg	acgagaaacc	aatcaagaca	720
gaattcctgg	ttctccagca	ggaactgagg	gcaactgtca	ggaagcgaca	gggtccaagta	780
cagttagacac	tcaaaatgaa	cccttagata	tgaaagagcc	cgatgaagaa	aagagtgacc	840
aacagggaga	ggcattggac	catcgcagaa	gaagacaaag	aacaagaaaa	aaaaaaaaaa	900
aaaaaaagcg	ggttctaggg	cgccggggcg	tcgggcctcg	gccatggctc	acaggccgaa	960
aaggactttt	cggcagcgcg	cggctgattc	cagcgacagc	gatggcgccg	aggagtcgcc	1020
tgtgagcct	ggggcgccga	gggaacttcc	ggtcccggt	tctgcggagg	aagagccgcc	1080

ctctggagga	ggccgcgcgc	aggtggcggg	actgccccac	cgggttcggg	gccctcgtgg	1140
ccggggccgg	gtctgggcga	gctcccggcg	tgccaccaaa	gcggctcccc	gcgcggacga	1200
aggctcagaa	tccagaaccc	ttgatgtgtc	cacagatgaa	gaggataaaa	tacatcactc	1260
ctcagaaagt	aaggatgatc	agggtttgtc	ttctgacagt	tctagctctc	ttggagaaaa	1320
agaactttca	tcaacagtta	agatcccaga	tgcagctttt	attcaggcag	cccgcagaaa	1380
acgttgaatt	ggccagggcc	caagatgact	atatttcttt	ggatgtacaa	catacctcct	1440
ccatctctgt	aagcagaaat	gaagaaacaa	gtgaagaaag	tcaggaagat	gaaaagcaag	1500
atacttggga	acaacagcaa	atgaggaaag	cagttaaaat	catagaggaa	agagacatag	1560
atctttcctg	tggcagtggg	tcttcaaaag	tgaagaaatt	tgatacttcc	atttcatttc	1620
cgccagtaaa	tttagaaatt	ataaagaagc	aattaaatac	tagattaaca	ttactacagg	1680
aaactcaccg	ctcacacctg	agggagtatg	aaaaatacgt	acaagatgtc	aaaagctcaa	1740
agagtaccat	ccagaacctc	gagagtccat	caaatacagc	tctaaattgt	aaattctata	1800
aaagcatgaa	aatttatgtg	gaaaatttaa	tgactgcct	taatgaaaag	attatcaaca	1860
tccaagaaat	agaatcatcc	atgcatgcac	tctttttaa	acaagctatg	acctttatga	1920
aacgcaggca	agatgaatta	aaacatgaat	caacgtattt	acaacagtta	tcacgcaaag	1980
atgagacatc	cacaagtggg	aacttctcag	tagatgaaaa	aactcagtgg	attttagaag	2040
agattgaatc	tcgaaggaca	aaaagaagac	aagcaagggt	gctttctggg	aattgtaacc	2100
atcaggaagg	aacatctagt	gatgatgaac	tgcttcagc	agagatgatt	gacttccaaa	2160
aaagccaagg	tgacatttta	cagaaacaga	agaaagtttt	tgaagaagtg	caagatgatt	2220
tttgtaacat	ccagaatatt	ttgttgaaat	ttcagcaatg	gcgagaaaag	tttctgact	2280
cctattatga	agctttcatt	agtttatgca	taccaaagct	tttaaatccc	ctaatacgag	2340
ttcagttgat	tgattggaat	cctcttaagt	tggaatccac	aggtttaaaa	gagatgccat	2400
ggttcaaadc	tgtagaagaa	tttatggata	gcagtgtaga	agattcaaag	aaggaaagta	2460
gttcagataa	aaaagtcttg	tctgcaatca	tcaacaaaac	aattattccc	cgacttacag	2520
actttgtaga	attccttttg	gatcctttgt	caacctcaca	gacaacaagt	ttaataacac	2580
attgcagagt	gattcttgaa	gaacattcca	cttgtgaaaa	tgaagttagt	aaaagcagac	2640
aggatttact	taaatccatt	gtttcaagaa	tgaaaaaggc	agtagaagat	gatgttttta	2700
ttcctctgta	tccaaagagt	gctgtagaa	acaaaacatc	acctattcca	aagttccaag	2760
aaagacagtt	ctggctcaggc	ctaaaagctc	tccgcaatat	tcttcttttg	aatggactcc	2820
ttacagatga	caccttgcaa	gaactaggac	tagggaagct	gctaaatcgt	taccttatta	2880
tagcacttct	caatgccaca	cctgggccag	atgtggttaa	aaagtgcac	caggtagcag	2940
catgtctacc	agaaaaatgg	tttgaaaatt	ctgccatgag	gacatctatt	ccacagctag	3000
aaaacttcac	tcagttttta	ttgcagctcg	cacataaatt	atctagaagt	gaattcaggg	3060
atgaagtcca	agaaataatt	cttatttttg	tgaaaaataa	agctttgaat	caagcagaat	3120
ccttcataag	agagcatcac	ctagaccatc	ttaaatcact	aattaaagaa	gattgaataa	3180
actttattgg	aaaatgctaa	aattttaata	tagttacact	cagttccttt	gtttgagaag	3240
aagctggtgc	ctctctcttc	tttattccct	gtaatagaag	gtaggatttg	aaaaaagca	3300
ggactccacc	tctgtattcc	cccgtgcttt	accttctggc	atcatgaaa	gctgccatga	3360
ttctgtggtg	ttctaaggaa	ttaaatgcac	tggagcttta	agagctcaac	gtgtttccct	3420
ttg						3423

&lt;210&gt; 702

&lt;211&gt; 1106

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 702

ggcacgagca	gagacgctgc	aaattgcttg	tggacggtgt	aggccgctgc	aggccaccat	60
gaaaccggct	tccgatgac	tacgaccctc	acgcggtga	agagcctagc	gacgaggagc	120
cggcttttag	cagctctgag	gatgaagtgg	atgtgctttt	acatggaact	cctgacaaaa	180
aacgaaaaact	catcagagaa	tgtcttaccg	gagaaagtga	atcatctagt	gaagatgaat	240
ttgaaaagga	gatggaagct	gaattaaatt	ctaccatgaa	aacaatggag	gacaagttat	300
cctctctggg	aactggatct	tcctcaggaa	atggaaaagt	tgcaacagct	ccgacaagggt	360
actacgatga	tatatatttt	gattctgatt	ccgaggatga	agacagagca	gtacagggtga	420
ccaagaaaaa	aaagaagaaa	caacacaaga	ttccaacaaa	tgacgaatta	ctgtatgac	480



ctgaaaaaga taacagagat caggcctggg ttgatgcaca gagaaggggt taccatgggt	540
tgggaccaca gagatcacgt caacaacagc ctgttccaaa tagtgatgct gtcttgaatt	600
gtcctgcctg catgaccaca ctttgccttg attgccaaag gcatgaatca tacaaaactc	660
natatagagc aatgtttgtt atgaattgtt ctattaacaa agaggaaggt ctaagatatn	720
aagcctcnga naacaggaag aaaaggcggg tccatnaaaa aaataagggtc taaccgggaa	780
gatctgncga naaggcagaa acagatgtgg aaaaaatcta tcnccntcc tgnccctga	840
atgttccctg aaattggagt ctacaacaag gatnaattct tcnmttttcc cntgttttag	900
caagccttcc taaacngccc nctggccttt atttcccat actgttttta agggcaaatt	960
tggacagtcc ctnccccctt gcccgntcnt ntccctcntt gacttgaagg aaccatnttt	1020
ccnmttttaa gggaaaaaat tgttcacctc cttccctctc taattcctcc ccccccctt	1080
tttttccctt gaattncccc cttntg	1106

&lt;210&gt; 703

&lt;211&gt; 1095

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 703

tgcgcctcct ctctctcttc ttcttctctt tcttctctt ctctctagct tecttcaacca	60
aatcgactg getcctggac tcttttccca tcttaccac gaactgctgc ttgctcgctt	120
gtcctcagt cctagcttca tcaaactctg gttcctggaa tctgtctgc tgcgtcttc	180
ctanattcac tgaatccact tctgtgtagc acctgggtca gctgtcaatt aatgctagtc	240
ctcaggattt aaaaaataat cttaactcaa agtccaatgc aaaaacatta agttggtaat	300
tactcttgat cttgaattac ttccgttacg aaagtccttc acatttttca aactaagcta	360
ctatatttta ggccttccaa attcttctaa ctcttccaaa agccttctgc cttagttttt	420
tttaattac accagtcctt ttagtagctt ttgatgtga tttttaacca acttccccct	480
ctagcttcaa gtattctctt aaattgggtc tggctacgt aaacaccctc atcttctcaa	540
gctttacctt ctaactctg caccaccaga aattaaattg atgggctttt aaaataaatt	600
ggctacaata atttctcat ttttccagt ctattttatc caatttttgg ctttatattt	660
ttctatcttc tatactctc caatactgtc ttagcttgtt tttcatttcc tatctgaaac	720
tcttgaat aatttcattt tctatcttgt ttctatcttc caaattttct tctaaatttg	780
tacattttgc cettaacttt ttggtttctt aacntgggtc ttttctccg cctcctaatt	840
ttcanggttt aaatttatct ttttctctcc naaaaaattg nttttaanct nccaaattnc	900
ccnaacctnc nctaattcct ttctctcgcc tcccgtnat ttcttgtntt ccaattttcc	960
acttcaaatt ctatcttccc aaaatttttt ctncacaacnc cccaaataaa acttcccnnt	1020
tnctgctggg ttaataaaaag ntttaanagg gttaaaaagaa annaatcccc cngttttgga	1080
attnanggtt ttaaa	1095

&lt;210&gt; 704

&lt;211&gt; 1968

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 704

cggcagccct cctacctgcg cacgtgggtc cgctgctgct gcttcccgct cgccctgaac	60
ccagtgcctg cagccatggc tcccggccag ctgccttat ttagtgtctc tgacaaaacc	120
ggccttggtg aatttgcaag aaacctgacc gctcttggtt tgaatctggg cgcttccgga	180
gggactgcaa aagctctcag ggatgctggt ctggcagtca gagatgtctc tgagttgacg	240
ggatttctctg aaatgttggg gggacgtgtg aaaactttgc atcctgcagt ccatgctgga	300
atcctagctc gtaattatcc agaagataat gctgacatgg ccagacttga tttcaatctt	360
ataagagttg ttgcctgcaa tctctatccc tttgtaaaga cagtggcttc tccaggtgta	420
actgttgagg aggtgtgga gcaaattgac attggtggag taaccttact gagagctgca	480
gccccaaaacc acgtctcagt gacagtgggt tgtgaaccag aggactatgt ggtgggtgcc	540
acggagatgc agagctccga gagtaaggac acctccttgg agactagacg ccagttagcc	600
ttgaaggcat tcaactcatc ggcacaatat gatgaagcaa tttcagatta tttcaggaaa	660

cagtacagca	aaggcgtatc	tcagatgccc	ttgagatatg	gaatgaaccc	acatcagacc	720
cctgcccagc	tgtacacact	gcagcccaag	cttcccacat	cagttctaaa	tggagcccct	780
ggattttataa	acttgtgcca	tgccttgaac	gcctggcagc	tggatgaagga	actcaaggag	840
gcttttaggta	ttccagccgc	tgcctctttc	aaacatgtca	gcccagcagg	tgctgctgtt	900
ggaattccac	tcagtgaaga	tgaggccaaa	gtctgcatgg	tttatgatct	ctataaaacc	960
ctcacacca	tctcagcggc	atatgcaaga	gcaagagggg	ctgataggat	gtcttcattt	1020
ggtgattttg	ttgcattgtc	cgatgtttgt	gatgtacca	ctgcaaaaat	tatttccaga	1080
gaagtatctg	atgggtataat	tgcccagga	tatgaagaag	aagccttgac	aatactttcc	1140
aaaaagaaaa	atggaaaacta	ttgtgtcctt	cagatggacc	aatcttaca	accagatgaa	1200
aatgaagttc	gaactctctt	tggctctcat	ttaagccaga	agagaaataa	tgggtgtcgtc	1260
gacaagtcat	tatttagcaa	tgttgttacc	aaaaataaag	atttgccaga	gtctgccctc	1320
cgagacctca	tcgtagccac	cattgtctgc	aagtacactc	agtctaactc	tgtgtgctac	1380
gccaagaacg	ggcaggttat	cggtattgga	gcaggacagc	agtctcgtat	acactgcact	1440
cgcttgcag	gagataaggc	aaactattgg	tggcttagac	accatccaca	agtgttttcg	1500
atgaagttta	aaacaggagt	gaagagagca	gaaatctcca	atgccatcga	tcaatatgtg	1560
actggaacca	ttggcgagga	tgaagatttg	ataaagtggg	aggcactggt	tgaggaagtc	1620
cctgagttac	tactgaggc	agagaagaag	gaatgggttg	agaaactgac	tgaagtcttc	1680
atcagctctg	atgccttctt	ccctttccga	gataacgtag	acagagctaa	aaggagtggg	1740
gtggcgctaca	ttgcggctcc	ctccggtctc	gctgctgaca	aagttgtgat	tgaggcctgc	1800
gacgaactgg	gaatcctcct	cgctcatacg	aaccttcggc	tcttccacca	ctgattttac	1860
cacacactgt	tttttggtt	gcttatgtgt	aggtgaacag	tcacgcctga	aactttgagg	1920
ataacttttt	aaaaaataa	aacagtatct	cttaatcact	ggaaaaaa		1968

&lt;210&gt; 705

&lt;211&gt; 800

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 705

cctgcaggtc	gacactaagt	gggatccaaa	gaattcggca	cgagaaaaga	agaagactaa	60
gaataaaaaag	aataaagact	caaaagaaga	ccaagtccca	tatgtggtag	aaaaggaaga	120
gcagttgagg	aaagaacaag	caaatccaca	ctcagtcagt	agacttataa	aagatgatgc	180
aagtgtatgt	caagaggatt	ctgcaatgga	agacaagttc	tatagcctgg	atgaattgca	240
tattctggac	atgatagagc	agggtcagc	tggcaaagta	actacagact	atggagaaac	300
tgaaaaggaa	aggcttgctc	gtcaaaggca	gctttataaa	ttgcactatc	agtgtgaaga	360
tttcaaaaga	cagtttgaaa	cagtgaactt	tcggtggcaa	gaaaaccaa	tgcagattaa	420
aaagaaagac	aaaattatcg	catctcttaa	tcaacaagtt	gcttttgtaa	tcaataaggt	480
ttccaaatta	cagcgtcaaa	tccatgctaa	agataatgaa	atcaagaacc	ttaaagagca	540
actttctatg	aaaagatctc	agtgggaaat	ggaaaaacat	aatctgggaa	agcacaatga	600
aaacatacgt	aagcaaaactg	aacgcagaaa	ctagcagagc	tttaacagcc	gaaggtgtan	660
ttcttacagt	gtcgtanggg	antttgggtt	tgcctcatcc	tagagcaaga	ctgaaaagga	720
atgtcccaat	cagcntgcca	agggtgaccc	acatggganc	caagcaacct	agaaancact	780
tcaattttaa	gggctgcggg					800

&lt;210&gt; 706

&lt;211&gt; 487

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 706

caaaggaagc	tcagtttttc	ttttattatg	agctgcttgt	ntgagtgggtg	taaaattatg	60
tgtctttcaa	tatagtgtca	aagaagccag	ctaattttat	caaagcagca	gccaagaag	120
tcaggacaaa	tcttcaggac	ttgtgaaatg	aactgaaaga	gcttgaagca	gatggaattt	180
taatagttac	actatatatg	ctcttagtag	gtttttttct	tgtagtggaa	acataactgt	240
tagcatatct	cttaggatgt	ttttttctgt	cttttttaaat	tcttatttca	ctcatccttt	300

actctcccct	caagtattct	acactttaat	ttcctgaaat	aaatttaagg	aaaagggaaa	360
tagtaaagaa	gtaggaatgg	gtgcagcaca	ccagcatggc	acatgaatac	acatgtaact	420
aacctgcaca	ttgtgcacat	gtaccctaaa	acttaaagta	taataataat	aaaaaaaaaa	480
aaaaaaa						487

&lt;210&gt; 707

&lt;211&gt; 3599

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 707

aaggaggagc	gggccgtgga	ggcttcgccg	cctagggtact	gctataacca	gaatttggtg	60
taaaaaggat	ttacttggtg	gggccctctt	gataaaaaga	gatgtggggg	gattctcgac	120
ctgctaacag	aactggacct	tttcgtggga	gccaagaaga	aaggtttgct	cccgggtgga	180
acagggatta	tcctcctcct	ccccctaaga	gtcatgctca	agagagacac	tctggcaact	240
ttcctggcag	agattcactt	ccctttgatt	tcagggggca	ttcggggcct	ccttttgcaa	300
atgtagagga	gcattctttc	agctatggag	ctagagacgg	accgcatggg	gactatcgag	360
gaggggaggg	acctggacat	gatttcaggg	ggggagattt	ttcgtcttct	gatttccaga	420
gcagagattc	atcacagttg	gacttcaggg	gtaggacat	acattctggg	gattttcggg	480
atagagaagg	accacctatg	gactataggg	gtggagatgg	tacttctatg	gattatagag	540
gtagggaggg	acctcatatg	aactacagag	acagggatgc	tcacgctgtt	gacttcagag	600
gtagggatgc	tcctccatct	gacttcaggg	gccggggcac	ttatgattta	gattttagag	660
gccgggatgg	atccccatgca	gattttaggg	gaagggattt	atcagatttg	gattttaggg	720
ccagagaaca	gtcccgttct	gatttttagga	atagagatgt	atctgatttg	gacttttagag	780
acaaagacgg	aacacaagta	gacttttagag	gccgagggtc	aggtactact	gatctagact	840
ttagggacag	ggatacgcca	cattcagatt	tcagaggtag	acaccgatct	aggactgac	900
aggatttttag	gggcagagag	atgggatctt	gtatggaatt	taaagatagg	gagatgcccc	960
ctgtggatcc	aaatattttg	gattacattc	agccctctac	acaagataga	gaacattctg	1020
gtatgaatgt	gaacaggaga	gaagaatcca	cacacgacca	tacatagaa	aggcctgctt	1080
ttggcattca	gaaggagaa	tttgagcatt	cagaacaag	agaaggagaa	acacaagggtg	1140
tagcctttga	acatgagtct	ccagcagact	ttcagaacag	ccaaagtcca	gttcaagacc	1200
aagataagtc	acagctttct	ggacgtgaag	agcagagttc	agatgctggg	ctgtttaaag	1260
aagaaggcgg	tctggacttt	cttggggcgg	aagacaccga	ttacagaagc	atggagtacc	1320
gtgatgtgga	tcataggctg	ccaggaagcc	agatgttttg	ctatggccag	agcaagtctt	1380
ttccagaggg	caaaactgcc	cgagatgcc	aacgggacct	tcaggatcaa	gattatagga	1440
ccggcccaag	tgaggagaaa	cccagcaggc	ttattcgatt	aagtggggta	cctgaagatg	1500
ccacaaaaga	agagattctt	aatgcttttc	ggactcctga	tggcatgcct	gtaaagaact	1560
tgcagttgaa	ggagtataac	acaggttacg	actatggcta	tgtctgcgtg	gagttttcac	1620
tcttggaaga	tgccatcgga	tgcattggag	ccaaccaggg	aactctaata	atccaggaca	1680
aagaagttac	cctggagtat	gtatcaagcc	tggatttttg	gtactgcaa	cgatgtaagg	1740
caaacattgg	tgggcaccga	tcttctctgt	cattctgcaa	gaaccaaga	gaagtgcacg	1800
aggccaagca	agaattaata	acctaccctc	agcctcagaa	aacatccata	ccagcaccat	1860
tggaaaaaca	gcccacacag	ccctaagac	cagctgataa	ggaacctgaa	cccaggaaga	1920
gggaagaagg	ccaagagtca	cgcttaggac	atcaaaagag	agaagcagaa	aggtatctgc	1980
ctccttctcg	aaggggaagg	ccaactttcc	gaagagaccg	agagagggag	tcattggtctg	2040
gagagacacg	ccaggatgga	gagagcaaaa	ctatcatgct	aaagcgtatc	tatcggtcca	2100
caccacctga	ggtgatagtg	gaagtgcctg	agccctatgt	ccgccttact	actgccaacg	2160
tccgtatcat	caagaacaga	acaggcccta	tggggcatac	ctatggcttt	attgacctcg	2220
actcccatgt	ggaagctctt	cgtgtgggtg	agatcttaca	gaaccttgat	ccgccattta	2280
gcattgatgg	gaagatggta	gctgtaaacc	tggccactgg	aaaacgaaga	aatgattctg	2340
gggaccattc	tgaccacatg	cattactatc	agggtaaaaa	atatttccga	gataggaggg	2400
gaggtggcag	aaattcagac	tggctctcag	atacaaatcg	acaaggacaa	cagtcacat	2460
ctgactgcta	catatatgat	tctgctagt	gctactatta	tgacctcttg	gcaggaaact	2520
attatgaccc	caatacccag	caagaagtct	atgtgcccca	ggatcctgga	ttacctgagg	2580
aagaagagat	caaggaaaaa	aaaccacca	gtcaaggaaa	gtcaagtagc	aagaaggaaa	2640

```

tgtctaaaag agatggcaag gagaaaaaag acagaggagt gacgagggtt caggaaaaatg 2700
ccagtgaagg gaaggccctt gcagaagacg tctttaagaa gccctgcct cctactgtga 2760
agaaggaaga gaggccctt ccacctaaag tggtaaacc actgatcggc ctcttgggtg 2820
aatatggagg agacagtac tatgaggagg aagaagagga ggaacagacc cctccccac 2880
agccccgcac agcacagccc cagaagcgag aggagcaaac caagaaggag aatgaagaag 2940
acaaactcac tgactggaat aaactggctt gtctgctttg cagaaggcag tttcccaata 3000
aagaagttct gatcaaacac cagcagctgt cagacctgca caagcaaac ctggaaatcc 3060
accggaagat aaaacagtct gagcaggagc tagcctatct ggaaaggaga gaacgagagg 3120
gaaagttaa aggaagagga aatgatcgca gggaaaagct ccagtctttt gactctccag 3180
aaaggaaacg gattaagtac tccagggaaa ctgacagtga tcgtaaactt gttgataaag 3240
aagatatcga cactagcagc aaaggaggct gtgtccaaca ggctactggc tggaggaaag 3300
ggacaggcct gggatatggc catcctggat tggcttcac agaggaggct gaaggccgga 3360
tgaggggccc cagtgttgga gcctcaggaa gaaccagcaa aagacagtcc aacgagactt 3420
atcgagatgc tgttcgaaga gtcatgtttg ctcatataa agaactcgat taagaaagga 3480
gacaagtccc atgggataca acctccctct tgttttgtt gtctctcctt ttcttttgtt 3540
actgttcttg ctgctagaac ttttttaaat aaactttttt tcaatgtgat taaaaaaaa 3599

```

&lt;210&gt; 708

&lt;211&gt; 1123

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 708

```

Met Trp Gly Asp Ser Arg Pro Ala Asn Arg Thr Gly Pro Phe Arg Gly
 1           5           10          15
Ser Gln Glu Glu Arg Phe Ala Pro Gly Trp Asn Arg Asp Tyr Pro Pro
      20           25           30
Pro Pro Leu Lys Ser His Ala Gln Glu Arg His Ser Gly Asn Phe Pro
 35           40           45
Gly Arg Asp Ser Leu Pro Phe Asp Phe Gln Gly His Ser Gly Pro Pro
 50           55           60
Phe Ala Asn Val Glu Glu His Ser Phe Ser Tyr Gly Ala Arg Asp Gly
65           70           75           80
Pro His Gly Asp Tyr Arg Gly Gly Glu Gly Pro Gly His Asp Phe Arg
      85           90           95
Gly Gly Asp Phe Ser Ser Ser Asp Phe Gln Ser Arg Asp Ser Ser Gln
 100          105          110
Leu Asp Phe Arg Gly Arg Asp Ile His Ser Gly Asp Phe Arg Asp Arg
 115          120          125
Glu Gly Pro Pro Met Asp Tyr Arg Gly Gly Asp Gly Thr Ser Met Asp
 130          135          140
Tyr Arg Gly Arg Glu Ala Pro His Met Asn Tyr Arg Asp Arg Asp Ala
145          150          155          160
His Ala Val Asp Phe Arg Gly Arg Asp Ala Pro Pro Ser Asp Phe Arg
 165          170          175
Gly Arg Gly Thr Tyr Asp Leu Asp Phe Arg Gly Arg Asp Gly Ser His
 180          185          190
Ala Asp Phe Arg Gly Arg Asp Leu Ser Asp Leu Asp Phe Arg Ala Arg
 195          200          205
Glu Gln Ser Arg Ser Asp Phe Arg Asn Arg Asp Val Ser Asp Leu Asp
 210          215          220
Phe Arg Asp Lys Asp Gly Thr Gln Val Asp Phe Arg Gly Arg Gly Ser
225          230          235          240
Gly Thr Thr Asp Leu Asp Phe Arg Asp Arg Asp Thr Pro His Ser Asp
      245          250          255

```

Phe Arg Gly Arg His Arg Ser Arg Thr Asp Gln Asp Phe Arg Gly Arg  
 260 265 270  
 Glu Met Gly Ser Cys Met Glu Phe Lys Asp Arg Glu Met Pro Pro Val  
 275 280 285  
 Asp Pro Asn Ile Leu Asp Tyr Ile Gln Pro Ser Thr Gln Asp Arg Glu  
 290 295 300  
 His Ser Gly Met Asn Val Asn Arg Arg Glu Glu Ser Thr His Asp His  
 305 310 315 320  
 Thr Ile Glu Arg Pro Ala Phe Gly Ile Gln Lys Gly Glu Phe Glu His  
 325 330 335  
 Ser Glu Thr Arg Glu Gly Glu Thr Gln Gly Val Ala Phe Glu His Glu  
 340 345 350  
 Ser Pro Ala Asp Phe Gln Asn Ser Gln Ser Pro Val Gln Asp Gln Asp  
 355 360 365  
 Lys Ser Gln Leu Ser Gly Arg Glu Glu Gln Ser Ser Asp Ala Gly Leu  
 370 375 380  
 Phe Lys Glu Glu Gly Gly Leu Asp Phe Leu Gly Arg Gln Asp Thr Asp  
 385 390 395 400  
 Tyr Arg Ser Met Glu Tyr Arg Asp Val Asp His Arg Leu Pro Gly Ser  
 405 410 415  
 Gln Met Phe Gly Tyr Gly Gln Ser Lys Ser Phe Pro Glu Gly Lys Thr  
 420 425 430  
 Ala Arg Asp Ala Gln Arg Asp Leu Gln Asp Gln Asp Tyr Arg Thr Gly  
 435 440 445  
 Pro Ser Glu Glu Lys Pro Ser Arg Leu Ile Arg Leu Ser Gly Val Pro  
 450 455 460  
 Glu Asp Ala Thr Lys Glu Glu Ile Leu Asn Ala Phe Arg Thr Pro Asp  
 465 470 475 480  
 Gly Met Pro Val Lys Asn Leu Gln Leu Lys Glu Tyr Asn Thr Gly Tyr  
 485 490 495  
 Asp Tyr Gly Tyr Val Cys Val Glu Phe Ser Leu Leu Glu Asp Ala Ile  
 500 505 510  
 Gly Cys Met Glu Ala Asn Gln Gly Thr Leu Met Ile Gln Asp Lys Glu  
 515 520 525  
 Val Thr Leu Glu Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys Lys Arg  
 530 535 540  
 Cys Lys Ala Asn Ile Gly Gly His Arg Ser Ser Cys Ser Phe Cys Lys  
 545 550 555 560  
 Asn Pro Arg Glu Val Thr Glu Ala Lys Gln Glu Leu Ile Thr Tyr Pro  
 565 570 575  
 Gln Pro Gln Lys Thr Ser Ile Pro Ala Pro Leu Glu Lys Gln Pro Asn  
 580 585 590  
 Gln Pro Leu Arg Pro Ala Asp Lys Glu Pro Glu Pro Arg Lys Arg Glu  
 595 600 605  
 Glu Gly Gln Glu Ser Arg Leu Gly His Gln Lys Arg Glu Ala Glu Arg  
 610 615 620  
 Tyr Leu Pro Pro Ser Arg Glu Gly Pro Thr Phe Arg Arg Asp Arg  
 625 630 635 640  
 Glu Arg Glu Ser Trp Ser Gly Glu Thr Arg Gln Asp Gly Glu Ser Lys  
 645 650 655  
 Thr Ile Met Leu Lys Arg Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile  
 660 665 670  
 Val Glu Val Leu Glu Pro Tyr Val Arg Leu Thr Thr Ala Asn Val Arg  
 675 680 685  
 Ile Ile Lys Asn Arg Thr Gly Pro Met Gly His Thr Tyr Gly Phe Ile

690	695	700
Asp Leu Asp Ser His Val	Glu Ala Leu Arg Val	Val Lys Ile Leu Gln
705	710	715
Asn Leu Asp Pro Pro Phe Ser Ile Asp	Gly Lys Met Val Ala Val Asn	720
	725	730
Leu Ala Thr Gly Lys Arg Arg Asn Asp Ser Gly Asp His Ser Asp His		735
	740	745
Met His Tyr Tyr Gln Gly Lys Lys Tyr Phe Arg Asp Arg Arg Gly Gly		750
	755	760
Gly Arg Asn Ser Asp Trp Ser Ser Asp Thr Asn Arg Gln Gly Gln Gln		765
	770	775
Ser Ser Ser Asp Cys Tyr Ile Tyr Asp Ser Ala Ser Gly Tyr Tyr Tyr		780
785	790	795
Asp Pro Leu Ala Gly Thr Tyr Tyr Asp Pro Asn Thr Gln Gln Glu Val		800
	805	810
Tyr Val Pro Gln Asp Pro Gly Leu Pro Glu Glu Glu Ile Lys Glu		815
	820	825
Lys Lys Pro Thr Ser Gln Gly Lys Ser Ser Ser Lys Lys Glu Met Ser		830
	835	840
Lys Arg Asp Gly Lys Glu Lys Lys Asp Arg Gly Val Thr Arg Phe Gln		845
	850	855
Glu Asn Ala Ser Glu Gly Lys Ala Pro Ala Glu Asp Val Phe Lys Lys		860
865	870	875
Pro Leu Pro Pro Thr Val Lys Lys Glu Glu Ser Pro Pro Pro Pro Lys		880
	885	890
Val Val Asn Pro Leu Ile Gly Leu Leu Gly Glu Tyr Gly Gly Asp Ser		895
	900	905
Asp Tyr Glu Glu Glu Glu Glu Glu Gln Thr Pro Pro Pro Gln Pro		910
	915	920
Arg Thr Ala Gln Pro Gln Lys Arg Glu Glu Gln Thr Lys Lys Glu Asn		925
	930	935
Glu Glu Asp Lys Leu Thr Asp Trp Asn Lys Leu Ala Cys Leu Leu Cys		940
945	950	955
Arg Arg Gln Phe Pro Asn Lys Glu Val Leu Ile Lys His Gln Gln Leu		960
	965	970
Ser Asp Leu His Lys Gln Asn Leu Glu Ile His Arg Lys Ile Lys Gln		975
	980	985
Ser Glu Gln Glu Leu Ala Tyr Leu Glu Arg Arg Glu Arg Glu Gly Lys		990
	995	1000
Phe Lys Gly Arg Gly Asn Asp Arg Arg Glu Lys Leu Gln Ser Phe Asp		1005
	1010	1015
Ser Pro Glu Arg Lys Arg Ile Lys Tyr Ser Arg Glu Thr Asp Ser Asp		1020
1025	1030	1035
Arg Lys Leu Val Asp Lys Glu Asp Ile Asp Thr Ser Ser Lys Gly Gly		1040
	1045	1050
Cys Val Gln Gln Ala Thr Gly Trp Arg Lys Gly Thr Gly Leu Gly Tyr		1055
	1060	1065
Gly His Pro Gly Leu Ala Ser Ser Glu Glu Ala Glu Gly Arg Met Arg		1070
	1075	1080
Gly Pro Ser Val Gly Ala Ser Gly Arg Thr Ser Lys Arg Gln Ser Asn		1085
	1090	1095
Glu Thr Tyr Arg Asp Ala Val Arg Arg Val Met Phe Ala Arg Tyr Lys		1100
1105	1110	1115
Glu Leu Asp		112

<210> 709  
 <211> 3807  
 <212> DNA  
 <213> Homo Sapiens

<400> 709

aaggaggagc	gggccgtgga	ggcttcgccc	cctaggtact	gctataacca	gaatttggtg	60
taaaaaggat	ttacttggtg	gggccctctt	gataaaaaga	gatgtggggg	gattctcgac	120
ctgctaacag	aactggacct	tttcgagatg	gcgtttcgcc	gtgttgggcc	ggctgggtctc	180
ggactcctga	cctcaagtga	tccacctacc	tcggcctccc	aaagtgtctg	gactataggt	240
gtgagccacc	gcacctgcc	tttggtattg	caatctgcaa	gattttatta	cttaaagca	300
acagatgttc	tcattcattg	ttctgaagct	tggagttcca	atgaaaaatt	tagtgggagc	360
caagaagaaa	ggtttgctcc	cgggtggaac	agggattatc	ctcctcctcc	ccttaagagt	420
catgctcaag	agagacactc	tggcaacttt	cctggcagag	attcacttcc	ctttgatttc	480
caggggcatt	cggggcctcc	ttttgcaaat	gtagaggagc	attccttcag	ctatggagct	540
agagacggac	cgcattggtg	ctatcgagga	ggggaggagc	ctggacatga	tttcaggggg	600
ggagattttt	cgtcttctga	tttcagagc	agagattcat	cacagtggga	cttcaggggt	660
agggacatac	attctgggga	ttttcgggat	agagaaggac	cacctatgga	ctataggggt	720
ggagatggta	cttctatgga	ttatagaggt	agggaggcac	ctcatatgaa	ctacagagac	780
agggatgctc	acgctgttga	cttcagaggt	agggatgctc	ctccatctga	cttcaggggc	840
cggggcactt	atgatttaga	ttttagaggc	cgggatggat	cccatgcaga	ttttagggga	900
agggatttat	cagatttgga	ttttagggcc	agagaacagt	cccgttctga	ttttaggaat	960
agagatgtat	ctgatttgga	ctttagagac	aaagacggaa	cacaagtaga	ctttagaggc	1020
cgaggttcag	gtactactga	tctagacttt	agggacaggg	atacgccaca	ttcagatttc	1080
agaggtagac	accgatctag	gactgatcag	gatttttaggg	gcagagagat	gggatcttgt	1140
atggaattta	aagatagggg	gatgccccct	gtggatccaa	atattttgga	ttacattcag	1200
ccctctacac	aagatagaga	acattctggt	atgaatgtga	acaggagaga	agaatccaca	1260
cacgaccata	gcctagaaag	gcctgctttt	ggcattcaga	agggagaatt	tgagcattca	1320
gaaacaagag	aaggagaaac	acaaggtgta	gcctttgaac	atgagtctcc	agcagacttt	1380
cagaacagcc	aaagtccagt	tcaagacca	gataagtcac	agctttctgg	acgtgaagag	1440
cagagttcag	atgctggtct	gtttaaagaa	gaaggcggtc	tggactttct	tgggcggcaa	1500
gacaccgatt	acagaagcat	ggagtaccgt	gatgtggatc	ataggctgcc	aggaagccag	1560
atgtttggtc	atggccagag	caagtctttt	ccagagggca	aaactgcccg	agatgcccaa	1620
cgggaccttc	aggatcaaga	ttataggacc	ggcccaagtg	aggagaaacc	cagcaggctt	1680
attcgattaa	gtgggttacc	tgaagatgcc	acaaaagaag	agattcttaa	tgcttttcgg	1740
actcctgatg	gcatgcctgt	aaagaacttg	cagtgaagg	agtataacac	aggttacgac	1800
tatggctatg	tctgcgtgga	gttttctact	ttggaaagatg	ccatcggatg	catggaggcc	1860
aaccagggaa	ctctaattgat	ccaggacaaa	gaagttaccc	tggagtatgt	atcaagcctg	1920
gatttttggg	actgcaaacg	atgtaaggca	aacattgggtg	ggcaccgatc	ttcctgttca	1980
ttctgcaaga	acccaagaga	agtacagag	gccaaagcaag	aattaataac	ctaccctcag	2040
cctcagaaaa	catccatacc	agcaccattg	gaaaaacagc	ccaaccagcc	cctaagacca	2100
gctgataagg	aacctgaacc	caggaagagg	gaagaaggcc	aagagtcacg	cttaggacat	2160
caaaagagag	aagcagaaag	gtatctgcct	ccttctcgaa	gggaagggcc	aactttccga	2220
agagaccgag	agaggagtc	atggtctgga	gagacacgcc	aggatggaga	gagcaaaact	2280
atcatgctaa	agcgtatcta	tcgttccaca	ccacctgagg	tgatagtggg	agtgtctggg	2340
ccctatgtcc	gccttactac	tgccaacgct	cgtatcatca	agaacagaac	aggccctatg	2400
gggcatacct	atggctttat	tgacctcgac	tcccatgtgg	aagctcttcg	tgtggtgaag	2460
attctacaga	accttgatcc	gccatttagc	attgatggga	agatggtagc	tgtaaacctg	2520
gccactggaa	aacgaagaaa	tgattctggg	gaccattctg	accacatgca	ttactatcag	2580
ggtaaaaaat	atttccgaga	taggagggga	ggtggcagaa	attcagactg	gtcttcagat	2640
acaaatcgac	aaggacaaca	gtcatcatct	gactgtctaca	tatatgatc	tgctagtggc	2700
tactattatg	accccttggc	aggaacttat	tatgacccca	ataccagca	agaagtctat	2760
gtgccccagg	atcctggatt	acctgaggaa	gaagagatca	aggaaaaaaa	accaccaggt	2820
caaggaaagt	caagtagcaa	gaaggaaatg	tctaaaagag	atggcaagga	gaaaaaagac	2880
agaggagtga	cgaggtttca	ggaaaatgcc	agtgaaggga	aggcccctgc	agaagacgtc	2940

```

ttaaagaagc ccctgcctcc tactgtgaag aaggaagaga gtccccctcc acctaaagtg 3000
gtaaaccac  tgatcggcct cttgggtgaa tatggaggag acagtgacta tgaggaggaa 3060
gaagaggagg aacagacccc tccccacag ccccgcacag cacagcccca gaagcgagag 3120
gagcaaacca agaaggagaa tgaagaagac aaactcactg actggaataa actggcttgt 3180
ctgcttttga gaaggcagtt tcccaataaa gaagttctga tcaaacacca gcagctgtca 3240
gacctgcaca agcaaaacct ggaaatccac cggaagataa aacagtctga gcaggagcta 3300
gcctatctgg aaaggagaga acgagaggga aagtttaaag gaagaggaaa tgatcgcagg 3360
gaaaagctcc agtcttttga ctctccagaa aggaaacgga ttaagtactc cagggaaact 3420
gacagtgate gtaaacttgt tgataaagaa gatatcgaca ctagcagcaa aggaggctgt 3480
gtccaacagg ctactggctg gaggaaggga acaggcctgg gatatggcca tcctggattg 3540
gcttcatcag aggaggctga aggccgatg aggggccccca gtgttgagc ctcaggaaga 3600
accagcaaaa gacagtccaa cgagacttat cgagatgctg ttcgaagagt catgtttgct 3660
cgatataaag aactcgatta agaaaggaga caagttccat gggatacaac ctccctcttg 3720
ttttgtttgt ctctcctttt cttttgttac tgttcttgct gctagaactt ttttaaataa 3780
actttttttc aatgtgatta aaaaaaa 3807

```

&lt;210&gt; 710

&lt;211&gt; 1177

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 710

```

Met Ala Phe Arg Arg Val Gly Arg Ala Gly Leu Gly Leu Leu Thr Ser
 1          5          10          15
Ser Asp Pro Pro Thr Ser Ala Ser Gln Ser Ala Gly Thr Ile Gly Val
          20          25          30
Ser His Arg Thr Cys His Leu Asp Trp Gln Ser Ala Arg Phe Tyr Tyr
          35          40          45
Leu Asn Ala Thr Asp Val Leu Ile His Cys Ser Glu Ala Trp Ser Ser
          50          55          60
Asn Glu Lys Phe Ser Gly Ser Gln Glu Glu Arg Phe Ala Pro Gly Trp
65          70          75          80
Asn Arg Asp Tyr Pro Pro Pro Leu Lys Ser His Ala Gln Glu Arg
          85          90          95
His Ser Gly Asn Phe Pro Gly Arg Asp Ser Leu Pro Phe Asp Phe Gln
          100          105          110
Gly His Ser Gly Pro Pro Phe Ala Asn Val Glu Glu His Ser Phe Ser
          115          120          125
Tyr Gly Ala Arg Asp Gly Pro His Gly Asp Tyr Arg Gly Gly Glu Gly
          130          135          140
Pro Gly His Asp Phe Arg Gly Gly Asp Phe Ser Ser Ser Asp Phe Gln
145          150          155          160
Ser Arg Asp Ser Ser Gln Leu Asp Phe Arg Gly Arg Asp Ile His Ser
          165          170          175
Gly Asp Phe Arg Asp Arg Glu Gly Pro Pro Met Asp Tyr Arg Gly Gly
          180          185          190
Asp Gly Thr Ser Met Asp Tyr Arg Gly Arg Glu Ala Pro His Met Asn
          195          200          205
Tyr Arg Asp Arg Asp Ala His Ala Val Asp Phe Arg Gly Arg Asp Ala
          210          215          220
Pro Pro Ser Asp Phe Arg Gly Arg Gly Thr Tyr Asp Leu Asp Phe Arg
225          230          235          240
Gly Arg Asp Gly Ser His Ala Asp Phe Arg Gly Arg Asp Leu Ser Asp
          245          250          255
Leu Asp Phe Arg Ala Arg Glu Gln Ser Arg Ser Asp Phe Arg Asn Arg

```



260	265	270
Asp Val Ser Asp Leu Asp Phe Arg Asp Lys Asp Gly Thr Gln Val Asp		
275	280	285
Phe Arg Gly Arg Gly Ser Gly Thr Thr Asp Leu Asp Phe Arg Asp Arg		
290	295	300
Asp Thr Pro His Ser Asp Phe Arg Gly Arg His Arg Ser Arg Thr Asp		
305	310	315
Gln Asp Phe Arg Gly Arg Glu Met Gly Ser Cys Met Glu Phe Lys Asp		
325	330	335
Arg Glu Met Pro Pro Val Asp Pro Asn Ile Leu Asp Tyr Ile Gln Pro		
340	345	350
Ser Thr Gln Asp Arg Glu His Ser Gly Met Asn Val Asn Arg Arg Glu		
355	360	365
Glu Ser Thr His Asp His Thr Ile Glu Arg Pro Ala Phe Gly Ile Gln		
370	375	380
Lys Gly Glu Phe Glu His Ser Glu Thr Arg Glu Gly Glu Thr Gln Gly		
385	390	395
Val Ala Phe Glu His Glu Ser Pro Ala Asp Phe Gln Asn Ser Gln Ser		
405	410	415
Pro Val Gln Asp Gln Asp Lys Ser Gln Leu Ser Gly Arg Glu Glu Gln		
420	425	430
Ser Ser Asp Ala Gly Leu Phe Lys Glu Glu Gly Gly Leu Asp Phe Leu		
435	440	445
Gly Arg Gln Asp Thr Asp Tyr Arg Ser Met Glu Tyr Arg Asp Val Asp		
450	455	460
His Arg Leu Pro Gly Ser Gln Met Phe Gly Tyr Gly Gln Ser Lys Ser		
465	470	475
Phe Pro Glu Gly Lys Thr Ala Arg Asp Ala Gln Arg Asp Leu Gln Asp		
485	490	495
Gln Asp Tyr Arg Thr Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu Ile		
500	505	510
Arg Leu Ser Gly Val Pro Glu Asp Ala Thr Lys Glu Glu Ile Leu Asn		
515	520	525
Ala Phe Arg Thr Pro Asp Gly Met Pro Val Lys Asn Leu Gln Leu Lys		
530	535	540
Glu Tyr Asn Thr Gly Tyr Asp Tyr Gly Tyr Val Cys Val Glu Phe Ser		
545	550	555
Leu Leu Glu Asp Ala Ile Gly Cys Met Glu Ala Asn Gln Gly Thr Leu		
565	570	575
Met Ile Gln Asp Lys Glu Val Thr Leu Glu Tyr Val Ser Ser Leu Asp		
580	585	590
Phe Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile Gly Gly His Arg Ser		
595	600	605
Ser Cys Ser Phe Cys Lys Asn Pro Arg Glu Val Thr Glu Ala Lys Gln		
610	615	620
Glu Leu Ile Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile Pro Ala Pro		
625	630	635
Leu Glu Lys Gln Pro Asn Gln Pro Leu Arg Pro Ala Asp Lys Glu Pro		
645	650	655
Glu Pro Arg Lys Arg Glu Glu Gly Gln Glu Ser Arg Leu Gly His Gln		
660	665	670
Lys Arg Glu Ala Glu Arg Tyr Leu Pro Pro Ser Arg Arg Glu Gly Pro		
675	680	685
Thr Phe Arg Arg Asp Arg Glu Arg Glu Ser Trp Ser Gly Glu Thr Arg		
690	695	700

Gln Asp Gly Glu Ser Lys Thr Ile Met Leu Lys Arg Ile Tyr Arg Ser  
 705 710 715 720  
 Thr Pro Pro Glu Val Ile Val Glu Val Leu Glu Pro Tyr Val Arg Leu  
 725 730 735  
 Thr Thr Ala Asn Val Arg Ile Ile Lys Asn Arg Thr Gly Pro Met Gly  
 740 745 750  
 His Thr Tyr Gly Phe Ile Asp Leu Asp Ser His Val Glu Ala Leu Arg  
 755 760 765  
 Val Val Lys Ile Leu Gln Asn Leu Asp Pro Pro Phe Ser Ile Asp Gly  
 770 775 780  
 Lys Met Val Ala Val Asn Leu Ala Thr Gly Lys Arg Arg Asn Asp Ser  
 785 790 795 800  
 Gly Asp His Ser Asp His Met His Tyr Tyr Gln Gly Lys Lys Tyr Phe  
 805 810 815  
 Arg Asp Arg Arg Gly Gly Gly Arg Asn Ser Asp Trp Ser Ser Asp Thr  
 820 825 830  
 Asn Arg Gln Gly Gln Gln Ser Ser Ser Asp Cys Tyr Ile Tyr Asp Ser  
 835 840 845  
 Ala Ser Gly Tyr Tyr Tyr Asp Pro Leu Ala Gly Thr Tyr Tyr Asp Pro  
 850 855 860  
 Asn Thr Gln Gln Glu Val Tyr Val Pro Gln Asp Pro Gly Leu Pro Glu  
 865 870 875 880  
 Glu Glu Glu Ile Lys Glu Lys Lys Pro Thr Ser Gln Gly Lys Ser Ser  
 885 890 895  
 Ser Lys Lys Glu Met Ser Lys Arg Asp Gly Lys Glu Lys Lys Asp Arg  
 900 905 910  
 Gly Val Thr Arg Phe Gln Glu Asn Ala Ser Glu Gly Lys Ala Pro Ala  
 915 920 925  
 Glu Asp Val Phe Lys Lys Pro Leu Pro Pro Thr Val Lys Lys Glu Glu  
 930 935 940  
 Ser Pro Pro Pro Pro Lys Val Val Asn Pro Leu Ile Gly Leu Leu Gly  
 945 950 955 960  
 Glu Tyr Gly Gly Asp Ser Asp Tyr Glu Glu Glu Glu Glu Glu Gln  
 965 970 975  
 Thr Pro Pro Pro Gln Pro Arg Thr Ala Gln Pro Gln Lys Arg Glu Glu  
 980 985 990  
 Gln Thr Lys Lys Glu Asn Glu Glu Asp Lys Leu Thr Asp Trp Asn Lys  
 995 1000 1005  
 Leu Ala Cys Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys Glu Val Leu  
 1010 1015 1020  
 Ile Lys His Gln Gln Leu Ser Asp Leu His Lys Gln Asn Leu Glu Ile  
 1025 1030 1035 104  
 His Arg Lys Ile Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu Glu Arg  
 1045 1050 1055  
 Arg Glu Arg Glu Gly Lys Phe Lys Gly Arg Gly Asn Asp Arg Arg Glu  
 1060 1065 1070  
 Lys Leu Gln Ser Phe Asp Ser Pro Glu Arg Lys Arg Ile Lys Tyr Ser  
 1075 1080 1085  
 Arg Glu Thr Asp Ser Asp Arg Lys Leu Val Asp Lys Glu Asp Ile Asp  
 1090 1095 1100  
 Thr Ser Ser Lys Gly Gly Cys Val Gln Gln Ala Thr Gly Trp Arg Lys  
 1105 1110 1115 112  
 Gly Thr Gly Leu Gly Tyr Gly His Pro Gly Leu Ala Ser Ser Glu Glu  
 1125 1130 1135  
 Ala Glu Gly Arg Met Arg Gly Pro Ser Val Gly Ala Ser Gly Arg Thr

1140 1145 1150  
 Ser Lys Arg Gln Ser Asn Glu Thr Tyr Arg Asp Ala Val Arg Arg Val  
 1155 1160 1165  
 Met Phe Ala Arg Tyr Lys Glu Leu Asp  
 1170 1175

<210> 711  
 <211> 4060  
 <212> DNA  
 <213> Homo Sapiens

<400> 711  
 ctgaaggcag cggcgcgagg cctttgtggt agcagtggcc ccgcgcgagg gaagttccgg 60  
 tgtccgcggc gctaggtcgg tggcggaggc tgaggagaag gaggagcggg ccgtggaggc 120  
 ttcgcccgcct aggtactgct ataaccagaa tttggtataa aaaggattta cttgttgggg 180  
 ccctcttgat aaaaagagat gtggggggat tctcgacctg ctaacagaac tggacctttt 240  
 cggactgggt gaaagctttt tctgcagcag tcatgttaaa aaccttggtg tgactttcct 300  
 cgtgttctga aactaacaga actggacctt ttcggactgg gtgaaagctt tttctgcagc 360  
 agtcatgttg aaaaccttgt gttgactttc ttcgtgttct gaaatgggag cataaaagtt 420  
 tactccgccca ntctgtctta aaatagcaaa actttgctgt tttctgcaga tctaggacct 480  
 tgttacagaa ctctgccaaa aaaaaaatgt ttacagaaga atgtgctgtg attagagaag 540  
 aatatgctgg tgtgtagatt tcaaaactctc tggacaatat gaataacact gtctttgttt 600  
 ctacagtggg agccaagaag aaaggtttgc tcccgggtgg aacagggatt atcctcctcc 660  
 tccccttaag agtcatgctc aagagagaca ctctggcaac tttctggca gagattcact 720  
 tccctttgat ttccaggggc attcggggcc tccttttgca aatgtagagg agcattcttt 780  
 cagctatgga gctagagacg gaccgcatgg tgactatcga ggaggggagg gacctggaca 840  
 tgatttcagg gggggagatt tttcgtcttc tgatttccag agcagagatt catcacagt 900  
 ggacttcagg ggtagggaca tacattctgg ggatttccg gatagagaag gaccacctat 960  
 ggactatagg ggtggagatg gtacttctat ggattataga ggtagggagg cacctcatat 1020  
 gaactacaga gacagggatg ctcacgctgt tgacttcaga ggtagggatg ctctccatc 1080  
 tgacttcagg ggccggggca cttatgattt agattttaga ggccgggatg gatcccatgc 1140  
 agattttagg ggaagggatt tatcagattt ggattttagg gccagagaac agtcccgttc 1200  
 tgattttagg aatagagatg tatctgattt ggactttaga gacaaagacg gaacacaagt 1260  
 agactttaga ggccgagggt caggtactac tgatctagac tttagggaca gggatacgcc 1320  
 acattcagat ttcagaggta gacaccgatc taggactgat caggatttta ggggcagaga 1380  
 gatgggatct tgtatggaat ttaaagatag ggagatgcc cctgtggatc caaatatttt 1440  
 ggattacatt cagccctcta cacaagatag agaaccattct ggtatgaatg tgaacaggag 1500  
 agaagaatcc acacacgacc atacgataga aaggcctgct tttggcattc agaagggaga 1560  
 atttgagcat tcagaaacaa gagaaggaga aacacaaggt gtageccttg aacatgagtc 1620  
 tccagcagac tttcagaaca gccaaagtcc agttcaagac caagataagt cacagctttc 1680  
 tggacgtgaa gagcagagtt cagatgctgg tctgtttaaa gaagaaggcg gtctggactt 1740  
 tcttggggcg caagacaccg attacagaag catggagtac cgtgatgtgg atcataggct 1800  
 gccaggaagc cagatgtttg gctatggcca gagcaagtct tttccagagg gcaaaactgc 1860  
 ccgagatgcc caacgggacc ttcaggatca agattatagg accggcccaa gtgaggagaa 1920  
 acccagcagg cttattcgat taagtggggt acctgaagat gccacaaaag aagagattct 1980  
 taatgctttt cggactcctg atggcatgcc tgtaaaagaa ttgcagttga aggagtataa 2040  
 cacaggttac gactatggct atgtctgctg ggagttttca ctcttgaag atgccatcgg 2100  
 atgcatggag gccaacaggg gaactctaag gatccaggac aaagaagtta ccctggagta 2160  
 tgtatcaagc ctggattttt ggtactgcaa acgatgtgaa gcaaacattg gtgggcaccg 2220  
 atcttcctgt tcattctgca agaaccctaa agaagtgaac gaggccaagc aagaattaat 2280  
 aacctaccct cagcctcaga aaacatccat accagcacca ttggaaaaac agcccaacca 2340  
 gccctaaga ccagctgata aggaacctga acccaggaag aggaagaag gccaagagtc 2400  
 acgcttagga catcaaaaaga gagaagcaga aaggtatctg cctccttctc gaagggaaag 2460  
 gccaaacttc cgaagagacc gagagaggga gtcatggtct ggagagacac gccaggatgg 2520  
 agagagcaaa actatcatgc taaagcgtat ctatcggtcc acaccacctg aggtgatagt 2580

ggaagtgctg	gagccctatg	tccgccttac	tactgccaac	gtccgtatca	tcaagaacag	2640
aacaggccct	atggggcata	cctatggctt	tattgacctc	gactcccatg	tggaagctct	2700
tcgtgtggtg	aagatcttac	agaacctga	tccgccattt	agcattgatg	ggaagatggt	2760
agctgtaaac	ctggccactg	gaaaacgaag	aatgattctt	ggggaccatt	ctgaccacat	2820
gcattactat	cagggtaaaa	aatatttccg	agataggagg	ggaggtggca	gaaattcaga	2880
ctggctcttca	gatacaaatc	gacaaggaca	acagtcacat	tctgactgct	acatatatga	2940
ttctgctagt	ggctactatt	atgacctctt	ggcaggaact	tattatgacc	ccaataccca	3000
gcaagaagtc	tatgtgcccc	aggatcctgg	attacctgag	gaagaagaga	tcaaggaaaa	3060
aaaaccacc	agtcaaggaa	agtcaagtag	caagaaggaa	atgtctaaaa	gagatggcaa	3120
ggagaaaaaa	gacagaggag	tgacgagggt	tcaggaaaa	gccagtgaag	ggaaggcccc	3180
tgacagaagac	gtctttaaga	agccccctgc	tcctactgtg	aagaaggaa	agagtcccc	3240
tccacctaaa	gtggtaaaac	cactgatcgg	cctcttgggt	gaatatggag	gagacagtga	3300
ctatgaggag	gaagaagagg	aggaacagac	ccctccccc	cagccccgca	cagcacagcc	3360
ccagaagcga	gaggagcaaa	ccaagaagga	gaatgaagaa	gacaaactca	ctgactggaa	3420
taaactggct	tgtctgcttt	gcagaaggca	gtttcccaat	aaagaagttc	tgatcaaaaa	3480
ccagcagctg	tcagacctgc	acaagcaaaa	cctggaaatc	caccggaaga	taaaacagtc	3540
tgagcaggag	ctagcctatc	tggaaaggag	agaacgagag	ggaaagttaa	aaggaaagg	3600
aaatgatcgc	agggaaaaagc	tccagtcttt	tgactctcca	gaaaggaaac	ggattaagta	3660
ctccagggaa	actgacagtg	atcgtaaaact	tgattgataaa	gaagatatcg	acactagcag	3720
caaaggaggc	tgtgtccaac	aggctactgg	ctggaggaaa	gggacaggcc	tgggatattg	3780
ccatcctgga	ttggcttcat	cagaggaggc	tgaaggccgg	atgaggggcc	ccagtgttgg	3840
agcctcagga	agaaccagca	aaagacagtc	caacgagact	tatcgagatg	ctgttcgaag	3900
agtcattgtt	gctcgatata	aagaactcga	ttaagaaagg	agacaagttc	catgggatac	3960
aacctccctc	ttgttttgtt	tgtctctcct	tttcttttgt	tactgttctt	gctgctagaa	4020
ctttttttaa	taaacttttt	ttcaatgtga	ttaaaaaaaaa			4060

&lt;210&gt; 712

&lt;211&gt; 3736

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 712

aaggaggagc	gggcccgtgga	ggcttcgccc	cctaggtact	gctataacca	gaatttggtg	60
gaaaaaggat	ttacttggtg	gggccctctt	gataaaaaga	gatgtggggg	gattctcgac	120
ctgctaacag	aactggacct	tttcgatcta	ggaccttggt	acagaactct	gccaaaaaaa	180
aaatgtttac	agaagaatgt	gctgtgatta	gagaagaata	tgctggtgtg	tagattttcaa	240
actctntgga	caatatgaat	aacactgtct	ttgtttctac	agtgggagcc	aagaagaaag	300
gtttgctccc	gggtggaaca	gggattatcc	tctctctccc	cttaagagtc	atgctcaaga	360
gagacactct	ggcaactttc	ctggcagaga	ttcacttccc	tttgatttcc	aggggcattc	420
ggggcctcct	tttgcaaatg	tagaggagca	ttctttcagc	tatggagcta	gagacggacc	480
gcatgggtgac	tatcgaggag	gggagggacc	tggacatgat	ttcagggggg	gagatttttc	540
gtctttctgat	ttccagagca	gagattcatc	acagttggac	ttcaggggta	gggacataca	600
ttctggggat	tttcgggata	gagaaggacc	acctatggac	tataggggtg	gagatggtac	660
ttctatggat	tatagaggta	gggagggacc	tcatatgaac	tacagagaca	gggatgctca	720
cgctgttgac	ttcagaggta	gggatgctcc	tccatctgac	ttcagggggc	ggggcactta	780
tgatttagat	tttagaggcc	gggatggatc	ccatgcagat	tttaggggaa	gggattttatc	840
agatttggtg	tttagggcca	gagaacagtc	ccgttctgat	tttaggaata	gagatgtatc	900
tgatttggtg	tttagagaca	aagacggaac	acaagtagac	tttagaggcc	gaggttcagg	960
tactactgat	ctagacttta	gggacaggga	tacgccacat	tcagatttca	gaggtagaca	1020
ccgatctagg	actgatcagg	atttttagggg	cagagagatg	ggatcttgta	tgggaatttaa	1080
agatagggag	atgccccctg	tggatccaaa	tattttggat	tacattcagc	cctctacaca	1140
agatagagaa	cattctggta	tgaatgtgaa	caggagagaa	gaatccacac	acgaccatac	1200
gatagaaagg	cctgcttttg	gcattcagaa	gggagaattt	gagcattcag	aaacaagaga	1260
aggagaaaca	caaggtgtag	cctttgaaca	tgagtctcca	gcagactttc	agaacagcca	1320
aagtccagtt	caagaccaag	ataagtcaca	gctttctgga	cgtgaagagc	agagttcaga	1380

tgctggtctg	tttaaagaag	aaggcggctc	ggacttttct	gggcggcaag	acaccgatta	1440
cagaagcatg	gagtaccgtg	atgtggatca	taggctgcc	ggaagccaga	tgtttggtca	1500
tggccagagc	aagtcttttc	cagagggcaa	aactgcccga	gatgcccac	gggaccttca	1560
ggatcaagat	tataggaccg	gcccgaagtg	ggagaaaccc	agcaggctta	ttcgattaag	1620
tggggtagct	gaagatgcc	caaaagaaga	gattcttaat	gcttttcgga	ctcctgatgg	1680
catgcctgta	aagaacttgc	agttgaagga	gtataacaca	ggttacgact	atggctatgt	1740
ctgcgtggag	ttttcactct	tggaagatgc	catcggatgc	atggaggcca	accagggaa	1800
tctaataatc	caggacaaa	aagttaccct	ggagtatgta	tcaagcctgg	attttttggt	1860
ctgcaaacga	tgtaaggcaa	acattgggtg	gcaccgatct	tctgttcat	tctgcaagaa	1920
cccaagagaa	gtgacagagg	ccaagcaaga	attaataacc	taccctcagc	ctcagaaaac	1980
atccatacca	gcaccattgg	aaaaacagcc	caaccagccc	ctaagaccag	ctgataagga	2040
acctgaaccc	aggaagagg	aagaaggcca	agagtcacgc	ttaggacatc	aaaagagaga	2100
agcagaaagg	tatctgcctc	cttctcgaag	ggaaggcca	actttccgaa	gagaccgaga	2160
gagggagtca	tggtctggag	agacacgcca	ggatggagag	agcaaaacta	tcatgctaaa	2220
gcgtatctat	cgttccacac	cacctgaggt	gatagtggaa	gtgctggagc	cctatgtccg	2280
ccttactact	gccaacgtcc	gtatcatcaa	gaacagaaca	ggccctatgg	ggcataccta	2340
tggtctttat	gacctcgact	cccatgtgga	agctcttcgt	gtggtgaaga	tcttacagaa	2400
ccttgatccg	ccatttagca	ttgatgggaa	gatggtagct	gtaaacctgg	ccactggaaa	2460
acgaagaaat	gattctgggg	accattctga	ccacatgcat	tactatcagg	gtaaaaaata	2520
tttccgagat	aggaggggag	gtggcagaaa	ttcagactgg	tcttcagata	caaactcgaca	2580
aggacaacag	tcatcatctg	actgctacat	atatgattct	gctagtggct	actattatga	2640
ccccttggca	ggaacttatt	atgaccccaa	taccagcaa	gaagtctatg	tgcccagga	2700
tcttgattta	cctgaggaag	aagagatcaa	ggaaaaaaa	cccaccagtc	aaggaaagtc	2760
aagtagcaag	aaggaaatgt	ctaaaagaga	tggaaggag	aaaaaagaca	gaggagtgac	2820
gaggtttcag	gaaaatgcc	gtgaaggga	ggccctgca	gaagacgtct	ttaagaagcc	2880
cctgcctcct	actgtgaaga	aggaagagag	tcccctcca	cctaaagtgg	taaacctact	2940
gatcggcctc	ttgggtgaat	atggaggaga	cagtactat	gaggaggaag	aagaggagga	3000
acagaccctc	ccccacagc	cccgacagc	acagcccag	aagcgagagg	agcaaaccaa	3060
gaaggagaa	gaagaagaca	aactcactga	ctggaataaa	ctggcttgct	tgctttgca	3120
aaggcagttt	ccaataaag	aagttctgat	caaacaccag	cagctgtcag	acctgcacaa	3180
gcaaaacctg	gaaatccacc	ggaagataaa	acagtctgag	caggagctag	cctatctgga	3240
aaggagagaa	cgagaggga	agtttaaagg	aagaggaaat	gatcgaggg	aaaagctcca	3300
gtcttttgac	tctccagaaa	ggaaacggat	taagtactcc	agggaaactg	acagtgatcg	3360
taaacttggt	gataaagaag	atatcgacac	tagcagcaaa	ggaggctgtg	tccaacaggc	3420
tactggctgg	aggaaaggga	caggcctggg	atatggccat	cctggattgg	cttcatcaga	3480
ggaggctgaa	ggccggtatg	ggggccccag	tggtggagcc	tcaggaagaa	ccagcaaaag	3540
acagtccaac	gagacttata	gagatgctgt	tcgaagagtc	atgtttgctc	gatataaaga	3600
actcgattaa	gaaaggagac	aagttccatg	ggatacaacc	tcctcttgt	tttgtttgtc	3660
tctccttttc	ttttgttact	gttcttgctg	ctagaacttt	tttaaataaa	ctttttttca	3720
atgtgattaa	aaaaaa					3736

&lt;210&gt; 713

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 713

Asn Val Glu Glu Xaa His Ser Phe Ser Tyr

1

5

10

&lt;210&gt; 714

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

<400> 714  
Pro Val Asp Pro Xaa Asn Ile Leu Asp Tyr  
1 5 10

<210> 715  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 715  
Asp Thr Asp Tyr Xaa Arg Ser Met Glu Tyr  
1 5 10

<210> 716  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 716  
Ser Leu Leu Glu Xaa Asp Ala Ile Gly Cys  
1 5 10

<210> 717  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 717  
Thr Leu Met Ile Xaa Gln Asp Lys Glu Val  
1 5 10

<210> 718  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 718  
Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys  
1 5 10

<210> 719  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 719  
Val Ile Val Glu Val Leu Glu Pro Tyr Val  
1 5 10

<210> 720  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 720

Lys Leu Thr Asp Xaa Trp Asn Lys Leu Ala  
1 5 10

<210> 721  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 721  
Gln Leu Ser Asp Leu His Lys Gln Asn Leu  
1 5 10

<210> 722  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 722  
Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu  
1 5 10

<210> 723  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 723  
Lys Leu Val Asp Lys Glu Asp Ile Asp Thr  
1 5 10

<210> 724  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 724  
Val Met Phe Ala Xaa Arg Tyr Lys Glu Leu  
1 5 10

<210> 725  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 725  
Gln Met Phe Gly Xaa Tyr Gly Gln Ser Lys  
1 5 10

<210> 726  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 726  
Gly Met Pro Val Lys Asn Leu Gln Leu Lys

1 5 10

<210> 727  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 727  
Gly Leu Pro Glu Xaa Glu Glu Glu Ile Lys  
1 5 10

<210> 728  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 728  
Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys  
1 5 10

<210> 729  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 729  
Glu Tyr Arg Asp Xaa Val Asp His Arg Leu  
1 5 10

<210> 730  
<211> 10  
<212> PRT  
<213> Homo Sapiens

---

<400> 730  
Gly Tyr Val Cys Xaa Val Glu Phe Ser Leu  
1 5 10

<210> 731  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 731  
Asp Tyr Gly Tyr Xaa Val Cys Val Glu Phe  
1 5 10

<210> 732  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 732  
Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile  
1 5 10



<210> 733  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 733  
Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile  
1 5 10

<210> 734  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 734  
Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile  
1 5 10

<210> 735  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 735  
His Tyr Tyr Gln Xaa Gly Lys Lys Tyr Phe  
1 5 10

<210> 736  
<211> 10  
<212> PRT  
<213> Homo Sapiens

---

<400> 736  
Val Tyr Val Pro Xaa Gln Asp Pro Gly Leu  
1 5 10

<210> 737  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 737  
Trp Asn Arg Asp Tyr Pro Pro Pro Pro Leu  
1 5 10

<210> 738  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 738  
Met Pro Pro Val Xaa Asp Pro Asn Ile Leu  
1 5 10

<210> 739

<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 739  
Thr Ala Arg Asp Xaa Ala Gln Arg Asp Leu  
1 5 10

<210> 740  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 740  
Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu  
1 5 10

<210> 741  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 741  
Thr Pro Pro Glu Val Ile Val Glu Val Leu  
1 5 10

<210> 742  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 742  
~~Arg Val Met Phe Ala Arg Tyr Lys Glu Leu~~  
1 5 10

<210> 743  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 743  
Arg Glu Met Gly Xaa Ser Cys Met Glu Phe  
1 5 10

<210> 744  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 744  
Glu Glu Gln Ser Ser Asp Ala Gly Leu Phe  
1 5 10

<210> 745  
<211> 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 745

Lys	Glu	Tyr	Asn	Xaa	Thr	Gly	Tyr	Asp	Tyr
1				5					10

&lt;210&gt; 746

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 746

Thr	Glu	Ala	Lys	Gln	Glu	Leu	Ile	Thr	Tyr
1				5					10

&lt;210&gt; 747

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 747

Val	Glu	Ala	Leu	Arg	Val	Val	Lys	Ile	Leu
1				5					10

&lt;210&gt; 748

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 748

Gly	Glu	Tyr	Gly	Xaa	Gly	Asp	Ser	Asp	Tyr
1				5					10

&lt;210&gt; 749

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 749

Leu	Glu	Arg	Arg	Glu	Arg	Glu	Gly	Lys	Phe
1				5					10

&lt;210&gt; 750

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 750

Arg	Gln	Asp	Gly	Glu	Ser	Lys	Thr	Ile	Met
1				5					10

&lt;210&gt; 751

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 751

Thr	Pro	Pro	Glu	Val	Ile	Val	Glu	Val	Leu
1				5					10

&lt;210&gt; 752

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 752

Tyr	Gly	Phe	Ile	Asp	Leu	Asp	Ser	His	Val
1				5					10

&lt;210&gt; 753

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 753

Arg	Gln	Phe	Pro	Xaa	Asn	Lys	Glu	Val	Leu
1				5					10

&lt;210&gt; 754

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 754

Asn	Val	Glu	Glu	Xaa	His	Ser	Phe	Ser	Tyr
1				5					10

&lt;210&gt; 755

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 755

Pro	Val	Asp	Pro	Xaa	Asn	Ile	Leu	Asp	Tyr
1				5					10

&lt;210&gt; 756

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 756

Asp	Thr	Asp	Tyr	Xaa	Arg	Ser	Met	Glu	Tyr
1				5					10

&lt;210&gt; 757

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

<400> 757  
Trp Gln Ser Ala Xaa Arg Phe Tyr Tyr Leu  
1 5 10

<210> 758  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 758  
Ser Leu Leu Glu Xaa Asp Ala Ile Gly Cys  
1 5 10

<210> 759  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 759  
Thr Leu Met Ile Xaa Gln Asp Lys Glu Val  
1 5 10

<210> 760  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 760  
Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys  
1 5 10

<210> 761  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 761  
Val Ile Val Glu Val Leu Glu Pro Tyr Val  
1 5 10

<210> 762  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 762  
Lys Leu Thr Asp Xaa Trp Asn Lys Leu Ala  
1 5 10

<210> 763  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 763

Gln Leu Ser Asp Leu His Lys Gln Asn Leu  
1 5 10

<210> 764  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 764  
Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu  
1 5 10

<210> 765  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 765  
Lys Leu Val Asp Lys Glu Asp Ile Asp Thr  
1 5 10

<210> 766  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 766  
Val Met Phe Ala Xaa Arg Tyr Lys Glu Leu  
1 5 10

<210> 767  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 767  
Gln Met Phe Gly Xaa Tyr Gly Gln Ser Lys  
1 5 10

<210> 768  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 768  
Gly Met Pro Val Lys Asn Leu Gln Leu Lys  
1 5 10

<210> 769  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 769  
Gly Leu Pro Glu Xaa Glu Glu Glu Ile Lys

1 5 10

<210> 770  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 770  
Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys  
1 5 10

<210> 771  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 771  
Tyr Tyr Leu Asn Xaa Ala Thr Asp Val Leu  
1 5 10

<210> 772  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 772  
Phe Tyr Tyr Leu Asn Ala Thr Asp Val Leu  
1 5 10

<210> 773  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 773  
Glu Tyr Arg Asp Xaa Val Asp His Arg Leu  
1 5 10

<210> 774  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 774  
Gly Tyr Val Cys Xaa Val Glu Phe Ser Leu  
1 5 10

<210> 775  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 775  
Asp Tyr Gly Tyr Xaa Val Cys Val Glu Phe  
1 5 10

<210> 776  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 776  
Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile  
1 5 10

<210> 777  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 777  
Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile  
1 5 10

<210> 778  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 778  
Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile  
1 5 10

<210> 779  
<211> 10  
<212> PRT  
<213> Homo Sapiens

~~<400> 779~~  
His Tyr Tyr Gln Xaa Gly Lys Lys Tyr Phe  
1 5 10

<210> 780  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 780  
Val Tyr Val Pro Xaa Gln Asp Pro Gly Leu  
1 5 10

<210> 781  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 781  
Trp Asn Arg Asp Tyr Pro Pro Pro Pro Leu  
1 5 10

<210> 782



<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 782  
Met Pro Pro Val Xaa Asp Pro Asn Ile Leu  
1 5 10

<210> 783  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 783  
Thr Ala Arg Asp Xaa Ala Gln Arg Asp Leu  
1 5 10

<210> 784  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 784  
Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu  
1 5 10

<210> 785  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 785  
Thr Pro Pro Glu Val Ile Val Glu Val Leu  
1 5 10

<210> 786  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 786  
Arg Val Met Phe Ala Arg Tyr Lys Glu Leu  
1 5 10

<210> 787  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 787  
Ser Glu Ala Trp Ser Ser Asn Glu Lys Phe  
1 5 10

<210> 788  
<211> 10

<212> PRT  
<213> Homo Sapiens

<400> 788  
Arg Glu Met Gly Xaa Ser Cys Met Glu Phe  
1 5 10

<210> 789  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 789  
Glu Glu Gln Ser Ser Asp Ala Gly Leu Phe  
1 5 10

<210> 790  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 790  
Lys Glu Tyr Asn Xaa Thr Gly Tyr Asp Tyr  
1 5 10

<210> 791  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 791  
Thr Glu Ala Lys Gln Glu Leu Ile Thr Tyr  
1 5 10

<210> 792  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 792  
Val Glu Ala Leu Arg Val Val Lys Ile Leu  
1 5 10

<210> 793  
<211> 10  
<212> PRT  
<213> Homo Sapiens

<400> 793  
Gly Glu Tyr Gly Xaa Gly Asp Ser Asp Tyr  
1 5 10

<210> 794  
<211> 10  
<212> PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 794

Leu Glu Arg Arg Glu Arg Glu Gly Lys Phe  
 1 5 10

&lt;210&gt; 795

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 795

Arg Gln Asp Gly Glu Ser Lys Thr Ile Met  
 1 5 10

&lt;210&gt; 796

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 796

Thr Pro Pro Glu Val Ile Val Glu Val Leu  
 1 5 10

&lt;210&gt; 797

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 797

Tyr Gly Phe Ile Asp Leu Asp Ser His Val  
 1 5 10

&lt;210&gt; 798

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 798

Arg Gln Phe Pro Xaa Asn Lys Glu Val Leu  
 1 5 10

&lt;210&gt; 799

&lt;211&gt; 1464

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 799

agtaccgggt	acgcaggggt	gcctcaacca	cactccgtcc	acggactctc	cgttatttta	60
ggaggtcct	ggccaaagat	ttatttctct	tgacaaccaa	gggcctccgt	ctggatttcc	120
aaggaagaat	ttcctctgaa	gcaccggaac	ttgtactac	cagcaccatg	ccctaccaat	180
atccagcact	gaccccgag	cagaagaagg	agctgtctga	catcgctcac	cgcatcgtgg	240
cacctggcaa	gggcatcctg	gctgcagatg	agtccactgg	gagcattgcc	aagcggctgc	300
agtccattgg	caccgagaac	accgaggaga	accggcgctt	ctaccgccag	ctgctgctga	360
cagctgacga	ccgcgtgaac	ccctgcattg	ggggtgtcat	cctcttccat	gagacactct	420

```

accagaaggc ggatgatggg cgcccttcc cccaagttat caaatccaag ggcggtgttg 480
tgggcatcaa ggtagacaag ggcgtggtcc ccctggcagg gacaaatggc gagactacca 540
cccaagggtt ggatgggctg tctgagcgct gtgccagta caagaaggac ggagctgact 600
tcgccaagtg gcgttgtgtg ctgaagattg gggaacacac cccctcagcc ctgcccata 660
tggaatatgc caatgttctg gcccgttatg ccagtatctg ccagcagaat ggcattgtgc 720
ccatcgtgga gcctgagatc ctccctgatg gggaccatga cttgaagcgc tgccagtatg 780
tgaccgagaa ggtgctggct gctgtctaca aggtcttgag tgaccaccac atctacctgg 840
aaggcacctt gctgaagccc aacatggtca cccagggcca tgcttgact cagaagtttt 900
ctcatgagga gattgccatg gcgaccgtca cagcgctgag ccgcacagt ccccccgtg 960
tcactgggat caccttctg tctggaggcc agagtgagga ggaggcgctc atcaacctca 1020
atgccattaa caagtgtccc ctgctgaagc cctgggccc gaccttctcc tacggccgag 1080
ccctgcaggc ctctgccctg aaggcctggg gcgggaagaa ggagaacctg aaggctgcgc 1140
aggaggagta tgtcaagcga gccctggcca acagccttgc ctgtcaagga aagtacactc 1200
cgagcgttca ggctggggct gctgccagcg agtcctctt cgtctctaac cagcctatt 1260
aagcggaggt gttcccaggc tgcccccac aactccaggc cctgccccct cccactctg 1320
aagaggaggc cgcctcctcg gggctccagg ctggcttgcc cgcgctcttt cttccctcg 1380
gacagtgggt gtgtgtgtcg tctgtgaatg ctaagtccat caccctttcc ggcacactgc 1440
caaataaaca gctatttaag gggg 1464

```

&lt;210&gt; 800

&lt;211&gt; 364

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 800

```

Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu
1      5      10      15
Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala
20     25     30
Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly
35     40     45
Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu
50     55     60
Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe
65     70     75     80
His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln
85     90     95
Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly
100    105    110
Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu
115    120    125
Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp
130    135    140
Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser
145    150    155    160
Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser
165    170    175
Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu
180    185    190
Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys
195    200    205
Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu
210    215    220
Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys
225    230    235    240

```

```
<210> 801
<211> 3504
<212> DNA
<213> Homo Sapiens
```

<400> 801							
ctctgtctttt	ctctttcaga	gctgtttgcgc	agccattgggt	acctgtattg	gggaaacata		60
gcatacaagc	aagaagctta	cagcctcagt	ggcgaaaaat	ttttcatgtc	agagaccgag		120
aactcttgca	gtcgtttatg	tcattcccttc	ttctccagac	agaagatacc	aaaaagttgc		180
aatcaaagat	ctgttcatct	tattgataaa	gtcactaata	agccaaaatg	tctgtcaacg		240
tcaaccgcag	cgtgtcagac	cagttctatc	gctacaagat	gccccgtttg	attgtctaagg		300
ttgagggcaa	aggaaatgga	atcaagacag	ttatagtcaa	ctgtggtgac	gttgcaaaag		360
cgcttaatcg	gcctccaacg	tatcccacca	aatatatttgg	ttgtgagctg	ggagcacaga		420
cccagtttga	tgttaagaat	gaccggttaca	ttgtcaatgg	atctcatgag	ggaataaagc		480
tcgaagacat	gttggtatgga	ttcattaaaa	aatttgttct	ctgtcctgag	tgtgagaatc		540
ctgaaacaga	tctgcatgtc	aatccaaaga	agcaacaat	aggtaattct	tgtaaagcct		600
gtgggtaccg	aggcatgctt	gacacacatc	ataaactctg	tacattcatt	ctcaaaaacc		660
cacctgagaa	tagtgacatt	ggtacaggaa	agaaagagaa	agaaaagaaa	aatagaaagg		720
gcaaggacaa	ggaaaatggc	tctgtatcca	ccagtggagac	accaccacct	ccaccaccaa		780
atgaaattag	tcctccacat	gctgtggaag	aagaggaaga	tgatgattgg	ggggaggata		840
caactgagga	agctcaaagg	cgcagaatgg	atgaaatcag	tgaccatgca	aaaggtctga		900
cacttagcga	tgattttgaa	agaactgtag	aagagcgtgt	taacatcctg	tttgattttg		960
ttaagaaaaa	gaaagaagag	ggcattattg	attcatctga	taaaagacatt	gtggctgagg		1020
cagaagaagt	ggatgtaaaa	gccattgggc	ctctcgtttt	gacagaagtt	ctctttgatg		1080
agaagataag	agagcaaatc	agaagaataca	ggcgccattt	tttaagattt	tgtcataaca		1140
acaaaagggc	ccagcggtag	cttcttcatt	gtttggaatg	tgtggtagca	atgcatcaag		1200
ctcagttgat	ctccaagatt	ccacatatct	tgaaggagat	gtatgatgca	gaccttttag		1260
aggaagaggt	cattatcagc	tggtcagaaa	aggcctctaa	gaaatatgtc	tcaaaagaac		1320
ttgccaaaaga	gattcgtgtc	aaagcagagc	catttattaa	atggttgaag	gaagcggagg		1380
aggaatcttc	tgggtggtgag	gaagaagacg	aagatgaaaa	tattgagggtg	gtatatctga		1440
agactgccag	tgtaccaaaa	gttgaaaactg	tgaagtctga	caacaaggat	gacgacattg		1500
atattgatgc	catttaaaag	gatggatgca	acttagctta	acagtgtaat	gctgcaaatt		1560
tttctccatt	atcagccaga	agtgaacat	gtatgtgcaa	gagctaaagt	gggttaacat		1620
catgctacac	ttgatactaa	aaagctatta	ctgtgagtgg	tctataatta	agcccaatga		1680
gacatctagg	gagtcctatac	atatcagtga	gcagttgtag	tttgcttatt	tatagcatgt		1740
ttcttttcgga	aaaactagtg	gtggacacat	ttggatcaca	ttttacagtt	tataaaaaat		1800
aaagatttga	tttttggtcat	tcttcagact	ttgggctatg	aatggccttat	gctgaagtaa		1860
ttggctactt	ttaggatgtt	acaccattta	ataacttaga	cttcttaagt	ttggtagatt		1920

```

gttaggtact gaagacttga agaatgcaaa caattataat gaccttactc agccattaag 1980
aaatgaagta ttttgaaagt tgtgtctcca gtccattgag attggcaact gacaattctt 2040
gtcattctaa ggaaatttga tgatttaatg acagtgtgac atcctcatga gaagtaaaaa 2100
tgacctgtgt gtccatgtgt ttaagagcaa attttgaaac ttggagttgt ggtttttcag 2160
tttgtgtaca ctcaccccaa attgtagtct attgagtcac gtgcattgca cgttggataa 2220
gccagggaaa tgacaaataa gtattttgtg tgtatttagt gggtgctttg tactgagaga 2280
aaagctttga ggtgtgatta aatcgtaaac tctgattcta tttgggagaa acaggaaaaa 2340
gggtgcactta atctaaaaca gcataagttt tcaactttta cccctaaatt ataatttcaa 2400
gatgtttaga catactgtat cttgtgtttg atgtgttccc cctccctaatt attatggttt 2460
attctttaat gccttttaat ttggatataa tagcttgtag ttttagatttt ggttgctatc 2520
ttgccaaaat aagtgttact gtttttcaag cttgatcccc ttccctgatt gtcttattta 2580
aagagaaagt taaactcata cttctgagtc agagcctgta ttttggttaa gacttgggat 2640
atTTTTtact tcacattgaa tatagctgga tacttgagaa gtctggtgat ggcactgggt 2700
gggtgcagct agctaaggcc tgaccagccc attcagagcc ttggacttca gacacaaaag 2760
tgagtttctt acccacttgc tgggtgtaaac tctatctggg gtcttgacta tatttgaata 2820
cttgtcttca atattaaaaa acatagcaca ttttctttc tacaaaagta cattctggag 2880
ttaagaaccc atctggttga tttgtgtgtg gcgtgctagc tcatacatta ttgggatctt 2940
attctttgtg tcattccatct cacagattat aagactttga ttaatgtaa aagtatgcgt 3000
taaaatcata ccaaacattt ggtaaaatta aaaccttgat gggaggctgg gcgtggaaca 3060
ggagccatat acctggaatg gtaacagggg aatgtgctat gtcacaccaa agaagtggga 3120
cttggaagt cacttgtctc ctgggtttca gactctttgt tgcattggca gcccatccat 3180
atgtcattac tttttgagat tctcaagtag atcagcacat ttcggcctca ggttggcaag 3240
atTTTgtctt agagctgttg ctttaaaggg aaatggtcag gtcttagaca cttaggaagg 3300
tcttgggctt ctgttcattc tggtgccaaa ccagtgggat tcaaatttca cacaatctgg 3360
gtttttattc atggagggtta acctggtaag agtaatcctt catggctcta ttgaggtgtc 3420
ttaaaaagtt tctgttttca aacagctaca ttacttgatt aaaacaatgt tataaaatta 3480
aatttcccc tcctttcata ttaa 3504

```

&lt;210&gt; 802

&lt;211&gt; 429

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 802

```

Met Ser Val Asn Val Asn Arg Ser Val Ser Asp Gln Phe Tyr Arg Tyr
1          5          10          15
Lys Met Pro Arg Leu Ile Ala Lys Val Glu Gly Lys Gly Asn Gly Ile
20          25          30
Lys Thr Val Ile Val Asn Met Val Asp Val Ala Lys Ala Leu Asn Arg
35          40          45
Pro Pro Thr Tyr Pro Thr Lys Tyr Phe Gly Cys Glu Leu Gly Ala Gln
50          55          60
Thr Gln Phe Asp Val Lys Asn Asp Arg Tyr Ile Val Asn Gly Ser His
65          70          75          80
Glu Ala Asn Lys Leu Gln Asp Met Leu Asp Gly Phe Ile Lys Lys Phe
85          90          95
Val Leu Cys Pro Glu Cys Glu Asn Pro Glu Thr Asp Leu His Val Asn
100         105         110
Pro Lys Lys Gln Thr Ile Gly Asn Ser Cys Lys Ala Cys Gly Tyr Arg
115         120         125
Gly Met Leu Asp Thr His His Lys Leu Cys Thr Phe Ile Leu Lys Asn
130         135         140
Pro Pro Glu Asn Ser Asp Ile Gly Thr Gly Lys Lys Glu Lys Glu Lys
145         150         155         160
Lys Asn Arg Lys Gly Lys Asp Lys Glu Asn Gly Ser Val Ser Thr Ser

```

```
<210> 803
<211> 2251
<212> DNA
<213> Homo Sapiens
```

<400> 803						
aggatgtctt	ctggcaattt	catataagta	ttttttcaaa	aatgtctctt	ctgtcaaccc	60
cacgcctttg	gcacaatgaa	gtgggtaacc	tttatttccc	ttctttttct	ctttagctcg	120
gcttattcca	ggggtgtggt	tcgtcgagat	gcacacaaga	gtgaggttgc	tcatcggttt	180
aaagatttgg	gagaagaaaa	tttcaaagcc	ttggtgttga	ttgcctttgc	tcagtatctt	240
cagcagtgtc	catttgaaga	tcatgtaaaa	ttagtgaatg	aagttaactga	atttgcacaaa	300
acatgtgtag	ctgatagatc	agctgaaaat	tgtgacaaat	cacttcatac	cctttttgga	360
gacaaattat	gcacagtgtc	aactcttcgt	gaaacctatg	gtgaaatggc	tgactgctgt	420
gcaaaacaag	aacctgagag	aaatgaatgc	ttcttgcaac	acaaagatga	caacccaac	480
ctccccgat	tggtgagacc	agaggttgat	gtgatgtgca	ctgcttttca	tgacaatgaa	540
gagacatttt	tgaaaaaata	cttatatgaa	attgccagaa	gacatcctta	cttttatgcc	600
ccggaactcc	ttttctttgc	taaaagggtat	aaagctgctt	ttacagaatg	ttgccaaagt	660
gctgataaag	ctgcctgcct	gttgccaaag	ctcgatgaac	ttcgggatga	agggaagggt	720
tcgtctgcc	aacagagact	caaatgtgcc	agtctccaaa	aatttggaga	aagcagattt	780
aaagcatggg	cagtggtctg	ctgagccag	agattttccca	aagctgagtt	tgacgaagtt	840
tccaagttag	tgacagactt	taccaaagtc	cacacggaat	gctgccatgg	agatctgctt	900

```

gaatgtgctg atgacagggc ggaccttgcc aagtatatct gtgaaaatca ggattcgatc 960
tccagttaaac tgaaggaatg ctgtgaaaaa cctctgttgg aaaaatccca ctgcattgcc 1020
gaagtggaaa atgatgagat gcctgctgac ttgccttcat tagctgctga ttttgttgaa 1080
agtaaggatg tttgcaaaaa ctatgctgag gcaaaggatg tcttcctggg catgtttttg 1140
tatgaatatg caagaaggca tcttgattac tctgtcgtgc tgctgctgag acttgccaag 1200
acatatgaaa ccactctaga gaagtgtgtg gccgtgcag atcctcatga atgctatgcc 1260
aaagtgttcg atgaatttaa acctcttggt gaagagcctc agaatttaac caaacaacaa 1320
tgtgagcttt ttaagcagct tggagagtac aaattccaga atgcgctatt agttcgttac 1380
accaagaaag taccccaagt gtcaactcca actctttag aggtctcaag aaacctagga 1440
aaagtgggca gcaaatgttg taaacatcct gaagcaaaaa gaatgccctg tgcagaagac 1500
tatctatccg tggctctgaa ccagttatgt gtgttgcatg agaaaaacgcc agtaagtgc 1560
agagtcacaa aatgctgcac agagtccttg gtgaacaggc gacctgctt ttcagctctg 1620
gaagtgcag aaacatacgt tcccaaagag tttaatgctg aaacattcac cttccatgca 1680
gatatatgca cactttctga gaaggagaga caaatcaaga aacaaactgc acttggtgag 1740
cttgtgaaac acaagcccaa ggcaacaaaa gagcaactga aagctgttat ggatgatttc 1800
gcagcttttg tagagaagtg ctgcaaggct gacgataagg agacctgctt tgccgaggag 1860
ggtaaaaaaa ttgttgcgtc aagtcaagct gccttaggct tataacatct acatttaaaa 1920
gcatctcagc ctaccatgag aataagagaa agaaaaatgaa gatcaaaagc ttattcatct 1980
gttttctttt tcgttgggtg aaagccaaca ccctgtctaa aaaacataaa tttctttaat 2040
cattttgcct cttttctctg tgcttcaatt aataaaaaat ggaaagaatc taatagagtg 2100
gtacagcact gttatttttc aaagatgtgt tgctatcctg aaaattctgt aggttctgtg 2160
gaagttccag tgttctctct tattccactt cggtagagga tttctagttt ctgtgggcta 2220
attaaataaa tcactaatat tcttctaagt t 2251

```

&lt;210&gt; 804

&lt;211&gt; 609

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 804

```

Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
 1             5             10             15
Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala
 20             25             30
His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu
 35             40             45
Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val
 50             55             60
Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp
 65             70             75             80
Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp
 85             90             95
Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala
100             105             110
Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln
115             120             125
His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val
130             135             140
Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys
145             150             155             160
Lys Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro
165             170             175
Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys
180             185             190
Cys Gln Ala Ala Asp Lys Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu

```



```

195          200          205
Leu Arg Asp Glu Gly Lys Ala Ser Ser Ala Lys Gln Arg Leu Lys Cys
210          215          220
Ala Ser Leu Gln Lys Phe Gly Glu Arg Ala Phe Lys Ala Trp Ala Val
225          230          235          240
Ala Arg Leu Ser Gln Arg Phe Pro Lys Ala Glu Phe Ala Glu Val Ser
245          250          255
Lys Leu Val Thr Asp Leu Thr Lys Val His Thr Glu Cys Cys His Gly
260          265          270
Asp Leu Leu Glu Cys Ala Asp Asp Arg Ala Asp Leu Ala Lys Tyr Ile
275          280          285
Cys Glu Asn Gln Asp Ser Ile Ser Ser Lys Leu Lys Glu Cys Cys Glu
290          295          300
Lys Pro Leu Leu Glu Lys Ser His Cys Ile Ala Glu Val Glu Asn Asp
305          310          315          320
Glu Met Pro Ala Asp Leu Pro Ser Leu Ala Ala Asp Phe Val Glu Ser
325          330          335
Lys Asp Val Cys Lys Asn Tyr Ala Glu Ala Lys Asp Val Phe Leu Gly
340          345          350
Met Phe Leu Tyr Glu Tyr Ala Arg Arg His Pro Asp Tyr Ser Val Val
355          360          365
Leu Leu Leu Arg Leu Ala Lys Thr Tyr Glu Thr Thr Leu Glu Lys Cys
370          375          380
Cys Ala Ala Ala Asp Pro His Glu Cys Tyr Ala Lys Val Phe Asp Glu
385          390          395          400
Phe Lys Pro Leu Val Glu Glu Pro Gln Asn Leu Ile Lys Gln Asn Cys
405          410          415
Glu Leu Phe Lys Gln Leu Gly Glu Tyr Lys Phe Gln Asn Ala Leu Leu
420          425          430
Val Arg Tyr Thr Lys Lys Val Pro Gln Val Ser Thr Pro Thr Leu Val
435          440          445
Glu Val Ser Arg Asn Leu Gly Lys Val Gly Ser Lys Cys Cys Lys His
450          455          460
Pro Glu Ala Lys Arg Met Pro Cys Ala Glu Asp Tyr Leu Ser Val Val
465          470          475          480
Leu Asn Gln Leu Cys Val Leu His Glu Lys Thr Pro Val Ser Asp Arg
485          490          495
Val Thr Lys Cys Cys Thr Glu Ser Leu Val Asn Arg Arg Pro Cys Phe
500          505          510
Ser Ala Leu Glu Val Asp Glu Thr Tyr Val Pro Lys Glu Phe Asn Ala
515          520          525
Glu Thr Phe Thr Phe His Ala Asp Ile Cys Thr Leu Ser Glu Lys Glu
530          535          540
Arg Gln Ile Lys Lys Gln Thr Ala Leu Val Glu Leu Val Lys His Lys
545          550          555          560
Pro Lys Ala Thr Lys Glu Gln Leu Lys Ala Val Met Asp Asp Phe Ala
565          570          575
Ala Phe Val Glu Lys Cys Cys Lys Ala Asp Asp Lys Glu Thr Cys Phe
580          585          590
Ala Glu Glu Gly Lys Lys Leu Val Ala Ala Ser Gln Ala Ala Leu Gly
595          600          605
Leu

```

&lt;210&gt; 805

&lt;211&gt; 1356

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 805

```

acaacaccca aggagtggag gtcagagtgt cacttttttg ttttcttttt gaaagatcat    60
tcgagaaaca cgtcactgat ctcccctgcg accatgtctt ccattaagat tgagtgtgtt    120
ttgccagaga actgccgggtg tggtagagtct ccagtatggg aggaagtgtc caactctctg    180
ctctttgtag acattcctgc aaaaaagggtt tgccgggtggg attcattcac caagcaagta    240
cagcgagtga ccatggatgc cccagtcagc tccgtggctc ttcgccagtc gggaggctat    300
gttgccacca ttggaacaaa gttctgtgct ttgaactgga aagaacaatc agcagttgtc    360
ttggccacgg tggataacga caagaaaaac aatcgcttca atgatgggaa ggtggatccc    420
gccgggaggt actttgctgg caccatggct gaggaacag ctccagcagt tcttgagcgg    480
caccaggggg cctgtactc cctctttcct gatcaccacg tgaaaaagta ctttgaccag    540
gtggacattt ccaatggttt ggattggctc gtagaccaca aaatcttcta ttacattgac    600
agcctgtcct actccgtgga tgcctttgac tatgacctgc agacaggaca gatctccaac    660
cgcagaagtg tttacaagct agaaaaggaa gaacaaatcc cagatggaat gtgtattgat    720
gctgagggga agctctgggt ggcctgttac aatggaggaa gagtgattcg ttagatcct    780
gtgacaggga aaagacttca aactgtgaag ttgcctgttg ataaaaaac ttcatgctgc    840
tttggaggga agaattactc tgaatgtat gtgacctgcg cccgggatgg gatggacccc    900
gagggtcttt tgaggcaacc tgaagctggt ggaattttca agataactgg tctgggggtc    960
aaaggaattg ctccctactc ctatgcggga tgaggacagg tcttctttcc tgccagaggg   1020
agctctgaag acaactagag aattctgggc ctgaaatttc aatctagtta gaaagaaaaa   1080
tgaggcaatg attttattaa cagcgttaag ttttaattta caacttttaa aaggcagagc   1140
atttttaaca aggggtgaca ggtggttttg ataacacact tataaggctt tctgtaaaag   1200
gtactataga agggcgaaga atcgttcaac tgtcaatcag cctcttgatt ctttgtaa   1260
tgccagggtg ggtgggtaca tatctcttct tgattctgca tttcatactt aactatatta   1320
aagcttcaag gaacaataaa tagtaacctg gtaatg    1356

```

&lt;210&gt; 806

&lt;211&gt; 299

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 806

```

Met Ser Ser Ile Lys Ile Glu Cys Val Leu Pro Glu Asn Cys Arg Cys
 1          5          10          15
Gly Glu Ser Pro Val Trp Glu Glu Val Ser Asn Ser Leu Leu Phe Val
 20          25          30
Asp Ile Pro Ala Lys Lys Val Cys Arg Trp Asp Ser Phe Thr Lys Gln
 35          40          45
Val Gln Arg Val Thr Met Asp Ala Pro Val Ser Ser Val Ala Leu Arg
 50          55          60
Gln Ser Gly Gly Tyr Val Ala Thr Ile Gly Thr Lys Phe Cys Ala Leu
 65          70          75          80
Asn Trp Lys Glu Gln Ser Ala Val Val Leu Ala Thr Val Asp Asn Asp
 85          90          95
Lys Lys Asn Asn Arg Phe Asn Asp Gly Lys Val Asp Pro Ala Gly Arg
100          105          110
Tyr Phe Ala Gly Thr Met Ala Glu Glu Thr Ala Pro Ala Val Leu Glu
115          120          125
Arg His Gln Gly Ala Leu Tyr Ser Leu Phe Pro Asp His His Val Lys
130          135          140
Lys Tyr Phe Asp Gln Val Asp Ile Ser Asn Gly Leu Asp Trp Ser Leu
145          150          155          160

```

Asp His Lys Ile Phe Tyr Tyr Ile Asp Ser Leu Ser Tyr Ser Val Asp  
 165 170 175  
 Ala Phe Asp Tyr Asp Leu Gln Thr Gly Gln Ile Ser Asn Arg Arg Ser  
 180 185 190  
 Val Tyr Lys Leu Glu Lys Glu Glu Gln Ile Pro Asp Gly Met Cys Ile  
 195 200 205  
 Asp Ala Glu Gly Lys Leu Trp Val Ala Cys Tyr Asn Gly Gly Arg Val  
 210 215 220  
 Ile Arg Leu Asp Pro Val Thr Gly Lys Arg Leu Gln Thr Val Lys Leu  
 225 230 235 240  
 Pro Val Asp Lys Thr Thr Ser Cys Cys Phe Gly Gly Lys Asn Tyr Ser  
 245 250 255  
 Glu Met Tyr Val Thr Cys Ala Arg Asp Gly Met Asp Pro Glu Gly Leu  
 260 265 270  
 Leu Arg Gln Pro Glu Ala Gly Gly Ile Phe Lys Ile Thr Gly Leu Gly  
 275 280 285  
 Val Lys Gly Ile Ala Pro Tyr Ser Tyr Ala Gly  
 290 295

<210> 807  
 <211> 1980  
 <212> DNA  
 <213> Homo Sapiens

<400> 807  
 atgccaaagta gtttgcctgct agcaaccaga aaccaaattcc tgtctatgat gaactgttgg 60  
 ttttcttctgtg ctcccaagaa cagacatgca gcagattgga acaaatatga tgaccgattg 120  
 atgaaagccg cggagagggg agatgtagaa aaagtcttct caatccttgc taaaaagggc 180  
 atcaatccag gcaaaactaga tgtggaaggc agatctgcct tccatgttgt ggcctcaaag 240  
 gggaatcttg aatgtttgaa tgccatcctt atacatggag ttgatattac aaccagtgc 300  
 actgcaggaa gaaatgctct tcaactggct gcaaagtatg ggcatgcatt gtgtctacaa 360  
 aaacttctac agtacaattg tcccactgaa catgcagacc tgcagggaag aaccgcactt 420  
 catgacgcag caatggcaga ctgtccttcc agcatacagc tgctttgtga ccatggggcc 480  
 tccgtgaatg ccaaagatgt ggatgggagg acaccgctgg ttctggctac tcagatgtgt 540  
 aggccagcaa tctgtcaact gctgatagat cgaggggcag agattaattc cagagacaaa 600  
 caaaacagaa ctgctctcat gcttggttgc gagtatggtt gtaaggatgc tgtagaagtc 660  
 ttacttaaaa atgggtgctga tgtaagcctg ctggatgcct tgggccatga tagttcttac 720  
 tatgcaagaa ttggtgacaa tctggacatt ctaactttat tgaagactgc gtcagaaaaa 780  
 accaacaag ggagagaact ttggaagaaa ggaccatctt tacagcagcg aaatttgccg 840  
 tacatgctag atgaagtaaa tgtgaagtca agtcagaggg agcatcgaaa cattcaggag 900  
 ctggagattg aaaatgaaga tttgaaagac aggttgagaa aaattcagca agaacagaga 960  
 atattactgg ataaagtcaa tggtttaca ctacagctga atgaggaagt gatggttgct 1020  
 gatgatctgg aaagttagaa agaaaagctg aagtctcttt tgggtggctaa agaaaagcaa 1080  
 catgaagaaa gcctaagaac tattgagtct ctgaaaaaca gatttaaata ttttgagtgt 1140  
 acttccccag ggggtgccagc ccacatgcaa agcagggtcta tgtaaagacc actggagcta 1200  
 tcattaccca atcaaaccctc atattctgaa aatgacctct taaagaaaga gttagaagca 1260  
 atgagaactt tctgcgaatc agccaaacaa gaccgcctca agctccagaa cggagtggcg 1320  
 cacaaggtgg ctgagtgc aaagccttagga ctagaatgtg aacgcaccaa ggaggactct 1380  
 gatgagcaga taaagcagtt agaagacgca ttgaaagatg tgcagaagag aatgtatgag 1440  
 tcggaaggta aatgaaaaca aatgcagaca cactttcttg cccttaaaga gcacctgacc 1500  
 agtgaagcag ctatagggaa tcacagacta atggaggagc tgaaggatca gttgaaggac 1560  
 atgaaagcga aatatgaggg tgcatcagca gaagtgggaa aactgcgaaa ccaaatacaa 1620  
 caaaatgagc tgctagtaga acagtttagg agagatgaag gcaagctggg ggaagagaat 1680  
 aagcgattgc agaaggaact cagtatgtgt gaaacggagc gagacaagaa aggaaggagg 1740  
 gttgctgagg tggaaggcca ggtaaaggaa ctcttagcaa agctgacctt gtcagttcca 1800

actgaaaaat ttgagagcat gaagagctta ttatcaagcg aagtaaata gaaggtgaaa 1860  
 aaaattggag agacagaaag agagtatgaa aaatcactta ctgaaatcag acagttaagg 1920  
 agagagcttg agaattgtaa gcgcctaaact tcctcagcat gtcaagccag aggagcatga 1980

<210> 808  
 <211> 659  
 <212> PRT  
 <213> Homo Sapiens

<400> 808  
 Met Pro Ser Ser Leu Leu Leu Ala Thr Arg Asn Gln Ile Leu Ser Met  
 1 5 10 15  
 Met Asn Cys Trp Phe Ser Cys Ala Pro Lys Asn Arg His Ala Ala Asp  
 20 25 30  
 Trp Asn Lys Tyr Asp Asp Arg Leu Met Lys Ala Ala Glu Arg Gly Asp  
 35 40 45  
 Val Glu Lys Val Ser Ser Ile Leu Ala Lys Lys Gly Ile Asn Pro Gly  
 50 55 60  
 Lys Leu Asp Val Glu Gly Arg Ser Ala Phe His Val Val Ala Ser Lys  
 65 70 75 80  
 Gly Asn Leu Glu Cys Leu Asn Ala Ile Leu Ile His Gly Val Asp Ile  
 85 90 95  
 Thr Thr Ser Asp Thr Ala Gly Arg Asn Ala Leu His Leu Ala Ala Lys  
 100 105 110  
 Tyr Gly His Ala Leu Cys Leu Gln Lys Leu Leu Gln Tyr Asn Cys Pro  
 115 120 125  
 Thr Glu His Ala Asp Leu Gln Gly Arg Thr Ala Leu His Asp Ala Ala  
 130 135 140  
 Met Ala Asp Cys Pro Ser Ile Gln Leu Leu Cys Asp His Gly Ala  
 145 150 155 160  
 Ser Val Asn Ala Lys Asp Val Asp Gly Arg Thr Pro Leu Val Leu Ala  
 165 170 175  
 Thr Gln Met Cys Arg Pro Ala Ile Cys Gln Leu Leu Ile Asp Arg Gly  
 180 185 190  
 Ala Glu Ile Asn Ser Arg Asp Lys Gln Asn Arg Thr Ala Leu Met Leu  
 195 200 205  
 Gly Cys Glu Tyr Gly Cys Lys Asp Ala Val Glu Val Leu Leu Lys Asn  
 210 215 220  
 Gly Ala Asp Val Ser Leu Leu Asp Ala Leu Gly His Asp Ser Ser Tyr  
 225 230 235 240  
 Tyr Ala Arg Ile Gly Asp Asn Leu Asp Ile Leu Thr Leu Leu Lys Thr  
 245 250 255  
 Ala Ser Glu Asn Thr Asn Lys Gly Arg Glu Leu Trp Lys Lys Gly Pro  
 260 265 270  
 Ser Leu Gln Gln Arg Asn Leu Pro Tyr Met Leu Asp Glu Val Asn Val  
 275 280 285  
 Lys Ser Ser Gln Arg Glu His Arg Asn Ile Gln Glu Leu Glu Ile Glu  
 290 295 300  
 Asn Glu Asp Leu Lys Asp Arg Leu Arg Lys Ile Gln Gln Glu Gln Arg  
 305 310 315 320  
 Ile Leu Leu Asp Lys Val Asn Gly Leu Gln Leu Gln Leu Asn Glu Glu  
 325 330 335  
 Val Met Val Ala Asp Asp Leu Glu Ser Glu Lys Glu Lys Leu Lys Ser  
 340 345 350  
 Leu Leu Val Ala Lys Glu Lys Gln His Glu Glu Ser Leu Arg Thr Ile

```

      355              360              365
Glu Ser Leu Lys Asn Arg Phe Lys Tyr Phe Glu Cys Thr Ser Pro Gly
 370              375              380
Val Pro Ala His Met Gln Ser Arg Ser Met Leu Arg Pro Leu Glu Leu
 385              390              395              400
Ser Leu Pro Asn Gln Thr Ser Tyr Ser Glu Asn Asp Leu Leu Lys Lys
      405              410              415
Glu Leu Glu Ala Met Arg Thr Phe Cys Glu Ser Ala Lys Gln Asp Arg
      420              425              430
Leu Lys Leu Gln Asn Gly Val Ala His Lys Val Ala Glu Cys Lys Ala
      435              440              445
Leu Gly Leu Glu Cys Glu Arg Ile Lys Glu Asp Ser Asp Glu Gln Ile
      450              455              460
Lys Gln Leu Glu Asp Ala Leu Lys Asp Val Gln Lys Arg Met Tyr Glu
 465              470              475              480
Ser Glu Gly Lys Val Lys Gln Met Gln Thr His Phe Leu Ala Leu Lys
      485              490              495
Glu His Leu Thr Ser Glu Ala Ala Ile Gly Asn His Arg Leu Met Glu
      500              505              510
Glu Leu Lys Asp Gln Leu Lys Asp Met Lys Ala Lys Tyr Glu Gly Ala
      515              520              525
Ser Ala Glu Val Gly Lys Leu Arg Asn Gln Ile Lys Gln Asn Glu Leu
      530              535              540
Leu Val Glu Gln Phe Arg Arg Asp Glu Gly Lys Leu Val Glu Glu Asn
 545              550              555              560
Lys Arg Leu Gln Lys Glu Leu Ser Met Cys Glu Thr Glu Arg Asp Lys
      565              570              575
Lys Gly Arg Arg Val Ala Glu Val Glu Gly Gln Val Lys Glu Leu Leu
      580              585              590
Ala Lys Leu Thr Leu Ser Val Pro Thr Glu Lys Phe Glu Ser Met Lys
      595              600              605
Ser Leu Leu Ser Ser Glu Val Asn Glu Lys Val Lys Lys Ile Gly Glu
 610              615              620
Thr Glu Arg Glu Tyr Glu Lys Ser Leu Thr Glu Ile Arg Gln Leu Arg
 625              630              635              640
Arg Glu Leu Glu Asn Cys Lys Arg Gln Thr Ser Ser Ala Cys Gln Ala
      645              650              655
Arg Gly Ala

```

&lt;210&gt; 809

&lt;211&gt; 1725

&lt;212&gt; DNA

&lt;213&gt; Homo Sapiens

&lt;400&gt; 809

```

tttctttgtt aagtcgttcc ctctacaaag gacttcctag tgggtgtgaa aggcagcggg      60
ggccacagag gcggcggaga gatggccttc agcgggtccc aggcctcccta cctgagtcca      120
gctgtcccct tttctgggac tattcaagga ggtctccagg acggacttca gatcactgtc      180
aatgggaccg ttctcagctc cagtggaaacc aggtttgctg tgaactttca gactggcttc      240
agtggaaatg acattgcctt ccacttcaac cctcggtttg aagatggagg gtacgtggtg      300
tgcaacacga ggcagaacgg aagctggggg cccgaggaga ggaagacaca catgcctttc      360
cagaagggga tgccctttga cctctgcttc ctggtgcaga gctcagattt caaggtgatg      420
gtgaacggga tcctcttcgt gcagtacttc caccgcgtgc cctccaccg tgtggacacc      480
atctccgtca atggctctgt gcagctgtcc tacatcagct tccagaaccc ccgcacagtc      540

```

```

cctgttcagc ctgccttctc cacggtgccg ttctcccage ctgtctgttt cccacccagg 600
cccagggggc gcagacaaaa acctcccggc gtgtggcctg ccaacccggc tcccattacc 660
cagacagtca tccacacagt gcagagcgcc cctggacaga tgttctctac tcccgccatc 720
ccacctatga tgtaccccca ccccgccctat cccgatgcctt tcatcaccac cattctggga 780
gggctgtacc catccaagtc catcctcctg tcaggcactg tcctgccag tgctcagagg 840
ttccacatca acctgtgctc tggaaccac atcgcttcc acctgaacct cgttttgat 900
gagaatgctg tggccgcaa caccagatc gacaactcct ggggtctga ggagcgaagt 960
ctgccccgaa aaatgccctt cgtccgtggc cagagcttct cagtgtggat cttgtgtgaa 1020
gctcactgcc tcaagtggtc cgtggatggt cagcacctgt ttgaatacta ccatcgccctg 1080
aggaacctgc ccaccatcaa cagactggaa gtggggggcg acatccagct gacccatgtg 1140
cagacatagg cggcttctctg gccctggggc cgggggctgg ggtgtggggc agtctgggtc 1200
ctctcatcat cccacttcc caggcccagc ctttccaacc ctgcctggga tctgggcttt 1260
aatgcagagg ccatgtcctt gtctggtcct gcttctggct acagccaccc tggaacggag 1320
aaggcagctg acggggattg cttcctcag ccgcagcagc acctggggct ccagctgctg 1380
gaatcctacc atcccaggag gcaggcacag ccaggagagag gggaggagtg ggcagtgaag 1440
atgaagcccc atgctcagtc cctcccac cccacgcag ctccacccca gtcccaagcc 1500
accagctgtc tgctcctggt gggaggtggc ctctcagcc cctcctctct gacctttaac 1560
ctcactctca ccttgaccg tgcaccaacc cttcaccct cctggaaagc aggcctgatg 1620
gcttcccact ggctccacc acctgaccag agtgttctct tcagaggact ggctccttcc 1680
ccagtgtcct taaaataaag aaatgaaaat gcttgttggc acatt 1725

```

&lt;210&gt; 810

&lt;211&gt; 355

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 810

```

Met Ala Phe Ser Gly Ser Gln Ala Pro Tyr Leu Ser Pro Ala Val Pro
1      5      10      15
Phe Ser Gly Thr Ile Gln Gly Gly Leu Gln Asp Gly Leu Gln Ile Thr
20     25     30
Val Asn Gly Thr Val Leu Ser Ser Ser Gly Thr Arg Phe Ala Val Asn
35     40     45
Phe Gln Thr Gly Phe Ser Gly Asn Asp Ile Ala Phe His Phe Asn Pro
50     55     60
Arg Phe Glu Asp Gly Gly Tyr Val Val Cys Asn Thr Arg Gln Asn Gly
65     70     75     80
Ser Trp Gly Pro Glu Arg Lys Thr His Met Pro Phe Gln Lys Gly
85     90     95
Met Pro Phe Asp Leu Cys Phe Leu Val Gln Ser Ser Asp Phe Lys Val
100    105    110
Met Val Asn Gly Ile Leu Phe Val Gln Tyr Phe His Arg Val Pro Phe
115    120    125
His Arg Val Asp Thr Ile Ser Val Asn Gly Ser Val Gln Leu Ser Tyr
130    135    140
Ile Ser Phe Gln Asn Pro Arg Thr Val Pro Val Gln Pro Ala Phe Ser
145    150    155    160
Thr Val Pro Phe Ser Gln Pro Val Cys Phe Pro Pro Arg Pro Arg Gly
165    170    175
Arg Arg Gln Lys Pro Pro Gly Val Trp Pro Ala Asn Pro Ala Pro Ile
180    185    190
Thr Gln Thr Val Ile His Thr Val Gln Ser Ala Pro Gly Gln Met Phe
195    200    205
Ser Thr Pro Ala Ile Pro Pro Met Met Tyr Pro His Pro Ala Tyr Pro
210    215    220

```

Met Pro Phe Ile Thr Thr Ile Leu Gly Gly Leu Tyr Pro Ser Lys Ser  
 225 230 235 240  
 Ile Leu Leu Ser Gly Thr Val Leu Pro Ser Ala Gln Arg Phe His Ile  
 245 250 255  
 Asn Leu Cys Ser Gly Asn His Ile Ala Phe His Leu Asn Pro Arg Phe  
 260 265 270  
 Asp Glu Asn Ala Val Val Arg Asn Thr Gln Ile Asp Asn Ser Trp Gly  
 275 280 285  
 Ser Glu Glu Arg Ser Leu Pro Arg Lys Met Pro Phe Val Arg Gly Gln  
 290 295 300  
 Ser Phe Ser Val Trp Ile Leu Cys Glu Ala His Cys Leu Lys Val Ala  
 305 310 315 320  
 Val Asp Gly Gln His Leu Phe Glu Tyr Tyr His Arg Leu Arg Asn Leu  
 325 330 335  
 Pro Thr Ile Asn Arg Leu Glu Val Gly Gly Asp Ile Gln Leu Thr His  
 340 345 350  
 Val Gln Thr  
 355

<210> 811  
 <211> 1022  
 <212> DNA  
 <213> Homo Sapiens

<400> 811  
 gcctgtgggt ctccattgcc cagcttttgc ctgcactctt gcctgctgcc ctgaccagag 60  
 tcatcatgtc tcttgagcag aagagtcagc actgcaagcc tgaggaaggc gttgaggccc 120  
 aagaagaggc cctgggcctg gtgggtgcac aggctcctac tactgaggag caggaggctg 180  
 ctgtctcctc ctccctctct ctggctctgg gcaccctgga gaaagtgcct gctgctgagt 240  
 cagcagatcc tccccagagt cctcagggag cctctgcctt acccactacc atcagcttca 300  
 cttgctggag gcaacccaat gaggggtcca gcagccaaga agaggaggag gccagcacct 360  
 cgctgacgc agagtccctg ttccgagaag cactcagtaa caagggtgat gagttggctc 420  
 attttctgct ccgcaagtat cgagccaagg agctggtcac aaaggcagaa atgctggaga 480  
 gagtcatcaa aaattacaag cgctgctttc ctgtgatctt cggcaaagcc tccgagtccc 540  
 tgaagatgat ctttggcatt gacgtgaagg aagtggaacc cgccagcaac acctacacc 600  
 ttgtcacctg cctgggcctt tcctatgatg gcctgctggg taataatcag atctttccca 660  
 agacaggcct cctgataatc gtccctggga caattgcaat ggagggcgac agcgcctctg 720  
 aggaggaaat ctgggaggag ctgggtgtga tgggggtgta tgatgggagg gagcacactg 780  
 tctatgggga gccagggaaa ctgctcacc cagattgggt gcaggaaaac tacctggagt 840  
 accggcaggt acccggcagt aatcctgcgc gctatgagtt cctgtgggggt ccaagggtc 900  
 tggctgaaac cagctatgtg aaagtccctg agcatgtggt cagggtcaat gcaagagttc 960  
 gcattgccta cccatccctg cgtgaagcag ctttgtaga ggaggaagag ggagtctgag 1020  
 ca 1022

<210> 812  
 <211> 317  
 <212> PRT  
 <213> Homo Sapiens

<400> 812  
 Met Ser Leu Glu Gln Lys Ser Gln His Cys Lys Pro Glu Glu Gly Val  
 1 5 10 15  
 Glu Ala Gln Glu Glu Ala Leu Gly Leu Val Gly Ala Gln Ala Pro Thr  
 20 25 30  
 Thr Glu Glu Gln Glu Ala Ala Val Ser Ser Ser Ser Pro Leu Val Leu

35	40	45
Gly Thr Leu Glu Lys Val Pro Ala Ala Glu Ser Ala Asp Pro Pro Gln		
50	55	60
Ser Pro Gln Gly Ala Ser Ala Leu Pro Thr Thr Ile Ser Phe Thr Cys		
65	70	75
Trp Arg Gln Pro Asn Glu Gly Ser Ser Ser Gln Glu Glu Glu Ala		
85	90	95
Ser Thr Ser Pro Asp Ala Glu Ser Leu Phe Arg Glu Ala Leu Ser Asn		
100	105	110
Lys Val Asp Glu Leu Ala His Phe Leu Leu Arg Lys Tyr Arg Ala Lys		
115	120	125
Glu Leu Val Thr Lys Ala Glu Met Leu Glu Arg Val Ile Lys Asn Tyr		
130	135	140
Lys Arg Cys Phe Pro Val Ile Phe Gly Lys Ala Ser Glu Ser Leu Lys		
145	150	155
Met Ile Phe Gly Ile Asp Val Lys Glu Val Asp Pro Ala Ser Asn Thr		
165	170	175
Tyr Thr Leu Val Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly		
180	185	190
Asn Asn Gln Ile Phe Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly		
195	200	205
Thr Ile Ala Met Glu Gly Asp Ser Ala Ser Glu Glu Glu Ile Trp Glu		
210	215	220
Glu Leu Gly Val Met Gly Val Tyr Asp Gly Arg Glu His Thr Val Tyr		
225	230	235
Gly Glu Pro Arg Lys Leu Leu Thr Gln Asp Trp Val Gln Glu Asn Tyr		
245	250	255
Leu Glu Tyr Arg Gln Val Pro Gly Ser Asn Pro Ala Arg Tyr Glu Phe		
260	265	270
Leu Trp Gly Pro Arg Ala Leu Ala Glu Thr Ser Tyr Val Lys Val Leu		
275	280	285
Glu His Val Val Arg Val Asn Ala Arg Val Arg Ile Ala Tyr Pro Ser		
290	295	300
Leu Arg Glu Ala Ala Leu Leu Glu Glu Glu Glu Gly Val		
305	310	315

<210> 813  
 <211> 5175  
 <212> DNA  
 <213> Homo Sapiens

<400> 813	
gctgctgctg cagtgggaca ggtggcggcg accggcggcg tccgaggaga tttaatccag	60
agactgactt cactatagaa occacagttg tatcaatggg tggggaaaga tagtggcaac	120
aggcaaagga gaaacagctc tgacatacaa agaaaatgag tatgctaaag ccaagtgggc	180
ttaaggcccc caccaagatc ctgaagcctg gaagcacagc tctgaagaca cctacggctg	240
ttgtagctcc agtagaaaaa accatatcca gtgaaaaagc atcaagcact ccatcatctg	300
agactcagga ggaatttggt gatgactttc gaggttggga gcgagtttgg gtgaatggaa	360
ataagcctgg atttatccag tttcttggag aaacccagtt tgcaccaggc cagtgggctg	420
gaattgtttt agatgaacct ataggcaaga acgatggttc ggtggcagga gttcgggtatt	480
tccagtgtga acctttaag ggcatattta cccgaccttc aaagttaaca aggaaggtgc	540
aagcagaaga tgaagctaag ggcctgcaga caacgcccgc ctcccagact acttcaccgc	600
tgtgcacttc tacggccagc atgggtgtct cctccccctc cacccttca aacatccctc	660
agaaaccatc acagccagca gcaaaggaac cttcagctac gcctccgac agcaacctta	720
caaaaactgc cagtgaatct atctccaacc tttcagaggc tggctcaatc aagaaaggag	780



aaagagagct	caaaatcgga	gacagagtat	tggttggtgg	cactaaggct	ggtgtagtcc	840
ggtttcttgg	ggagaccgac	tttgccaagg	gggagtggtg	tggcgtggag	ttagatgagc	900
cacttgggaa	gaatgatggc	gctgttgctg	gaacaaggta	ttttcagtgt	caaccctaat	960
atggcttggt	cgctcctgtc	cacaaagtta	ccaagattgg	cttcccttcc	actacaccag	1020
ccaaagccaa	ggccaacgca	gtgaggcgag	tgatggcgac	cacgtccgcc	agcctgaagc	1080
gcagcccttc	tgcctcttcc	ctcagctcca	tgagctcagt	ggcctcctct	gtgagcagca	1140
ggcccagtcg	gacaggacta	ttgactgaaa	cctcctcccg	ttacgccagg	aagatctccg	1200
gtaccactgc	cctccaggag	gccctgaagg	agaagcagca	gcacattgag	cagctgctgg	1260
cggaaacggg	tctggagagg	gcggaggtgg	ccaaggccac	gagccacgtg	ggggagatag	1320
agcaggagct	agctctggcc	cgggacggac	atgaccagca	tgctctggaa	ttggaagcca	1380
aaatggacca	gctgcgaaca	atggtggaag	ctgctgacag	ggagaagggtg	gagcttctca	1440
accagcttga	agaggagaaa	aggaagggtg	aggaccttca	gttccgggtt	gaagaagaat	1500
caattaccaa	aggtgatctt	gaggtggcta	cagtttcaga	aaagtcacgt	ataatggaac	1560
tggagaaaga	cctagcattg	agagtacagg	aagtagctga	gctccgaaga	aggctagagt	1620
ccaataagcc	tgctggggat	gtggacatgt	cactttccct	tttgcaagag	ataagctctt	1680
tgcaagaaaa	gttagaagtc	acccgtactg	accaccagag	agaaataact	tctctgaagg	1740
agcatttttg	agcccgggaa	gaaactcatc	agaaggagat	aaaggctctg	tataccgcca	1800
cggaaaagct	ttccaaagag	aacgagtcac	tgaagagcaa	gctggagcat	gccaacaaa	1860
agaactcaga	tgtagatgct	ctatggaaat	ccaaactgga	gactgccatc	gcatcccacc	1920
agcaggcgat	ggaagaactg	aaggatatctt	tcagcaaaag	gcttggaaca	gagacggcag	1980
aatttgctga	actaaaaaca	caaatagaga	aaatgagact	agattaccaa	cacgaaatag	2040
aaaatttgca	gaatcaacaa	gactctgaac	gggctgcccc	tgctaaagag	atggaagcct	2100
tgagggctaa	actgatgaaa	gttattaaag	aaaaggaaaa	cagctctggaa	gccatcaggt	2160
cgaaactgga	caaagcagaa	gaccagcatc	tcgtagaagt	ggaagacacg	ttaaacaaat	2220
tacaggaagc	tgaataaag	gtaaaggagc	tagaggtagt	gcaagccaaa	tgcaatgaac	2280
aaaccaaggt	tattgataat	tttacatcac	agctcaaggc	tactgaagaa	aagctcttgg	2340
atcttgatgc	acttcggaag	gccagttccg	aaggtaaatac	ggaaatgaag	aaacttagac	2400
agcagcttga	ggcagctgag	aaacagatta	aacttttaga	gattgaaaag	aatgctgaaa	2460
gtagcaaggc	tagtagcatt	accagagagc	tcagggggag	agagctaaag	cttactaacc	2520
ttcaggaaaa	tttgagtga	gtcagtcagg	tgaagagagc	tttggaaaaa	gaacttcaga	2580
ttttgaaaga	aaagtttgct	gaagcttcag	aggaggcagt	ctctgttcag	agaagtatgc	2640
aagaaactgt	aaataagtta	cacccaaaag	aggaacagtt	taacatgctg	tcttctgact	2700
tgagagaagct	gagagaaaac	ttagcagata	tgagggcaaa	atttagagag	aaagatgaga	2760
gagaagagca	gctgataaag	gcaaaggaaa	aactggaaaa	tgacattgca	gaaataatga	2820
agatgtcagg	agataactct	tctcagctga	caaaaatgaa	cgatgaatta	cgtctgaaag	2880
aaagagatgt	agaagaatta	cagctaaaac	ttacaagggc	taatgaaaat	gcaagttttc	2940
tgcaaaaaag	tattgaggac	atgactgtca	aagctgaaca	gagccagcaa	gaagcagcta	3000
aaaagcatga	ggaagaaaag	aaagaattgg	agaggaaatt	gtcggacctg	gaaaagaaaa	3060
tggaacaag	ccacaaccag	gttcaggagc	tgaagccag	gtatgagaga	gccacttctg	3120
agacaaaaac	caagcatgaa	gaaatcctac	agaacctcca	gaagacgctg	ctggacacag	3180
aggacaagct	gaagggcgca	cgggaggaga	acagtggctt	gctgcaggag	ctggaggagc	3240
tgagaaagca	agccgagaaa	gccaaagctg	ctcaaacagc	ggaagatgcc	atgcagataa	3300
tggaacagat	gaccaaagag	aagactgaga	ctctggcctc	cttgaggagc	accaagcaaa	3360
caaatgcaaa	actacagaat	gaattggaca	cacttaaaga	aaacaacttg	aaaaatgtgg	3420
aagagctgaa	caaatcaaaa	gaactcctga	ctgtagagaa	tcaaaaaatg	gaagaattta	3480
ggaaaagaaat	agaaacccta	aagcaggcag	cagctcagaa	gtcccagcag	ctttcagcgt	3540
tgcaagaaga	gaacgttaaa	cttgctgagg	agctggggag	aagcaggggc	gaagtcacaa	3600
gtcatcaaaa	gctggaagaa	gaaagatctg	tgctcaataa	tcagttgtta	gaaatgaaaa	3660
aaagagaatc	caagttcata	aaagacgcag	atgaagagaa	agcttccttg	cagaaatcca	3720
tcagtataac	tagtgcctta	ctcacagaaa	aggtgccga	gctggagaaa	ctgagaaatg	3780
aggtcacagt	gctcagggga	gaaaacgcct	ctgccaaagtc	cttgcatcca	gttggttcaga	3840
ctctagagtc	tgataagggtg	aagctcgagc	tcaaggtaaa	gaacttgagc	cttcaactca	3900
aagaaaacaa	gaggcagctc	agcagctcct	caggtaatac	agacactcag	gcagacgagg	3960
atgaaagagc	ccaggagagt	cagattgatt	tcctaaattc	agtaaatagt	gaccttcaaa	4020
ggaagaatca	agacctcaag	atgaagggtg	agatgatgtc	agaagcagcc	ctgaatggga	4080

```

acgggggatga cctaaacaat tatgacagt atgatcagga gaaacagtcc aagaagaaac 4140
ctcgctctct ctgtgacatt tgtgactgct ttgatctcca cgacacagag gattgtccta 4200
cccaggcaca gatgtcagag gaccctcccc attccacaca ccatggcagt cggggtgagg 4260
aacgcccata ctgtgaaatc tgtgagatgt ttggacactg ggccaccaac tgcaatgacg 4320
acgaaacctt ctgatgaagc ctccagtggg gaactgggct tgctcagacg cactcgcat 4380
gacacaacgt aacaccagca ttgtgtgtgc agacttcagg agaactcatg ttatttttta 4440
accccgtaaa caaatctagg aaaatatatt gatcttcaac aaattgccct ttagtctccc 4500
cgtatgagtt agaataataa atatttagta ggtgagcttt tcacctcgaa ttttgttttc 4560
ttgattttta cgtttgaaga cattgcacca gatgcsatta catttattgg cccccgacc 4620
ttgtagaaaa accoctaccc tcacaatacc ttatttaagt aactttaaat tatgccgtta 4680
cttttcatat ttgcactaag atatttccag gctgcatttg tatatttaga ttttttggtt 4740
aagctttgac actggaatga gttgaaaaaa tgtgccattt tgcattttca tctactcatt 4800
taaagtattt tattcttatt caaagaaata tctgagctct ttgcactacc tgttatcagt 4860
agtgccttta cttcaggctt gataatactt aggtgtgatt ataaaatcat gaagcaggta 4920
aagggagggg caagccccca aactgctgtg gggacatttt ataactata tgctgcaccc 4980
acttaatacta ctgtgggtgt ttgtttatta gttttgcata atttcagctt ctatatattg 5040
tatgtatata ttttttaaaa atctatattt tgggaaaaaa acatacaciaa tgtgtctttc 5100
tttttggaaca tttacctttt tgaaaaagaa aacacttaaa atgatcatta ggacataaca 5160
gactagggaa ttccg 5175

```

&lt;210&gt; 814

&lt;211&gt; 1392

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 814

```

Met Ser Met Leu Lys Pro Ser Gly Leu Lys Ala Pro Thr Lys Ile Leu
1      5      10      15
Lys Pro Gly Ser Thr Ala Leu Lys Thr Pro Thr Ala Val Val Ala Pro
20      25      30
Val Glu Lys Thr Ile Ser Ser Glu Lys Ala Ser Ser Thr Pro Ser Ser
35      40      45
Glu Thr Gln Glu Glu Phe Val Asp Asp Phe Arg Val Gly Glu Arg Val
50      55      60
Trp Val Asn Gly Asn Lys Pro Gly Phe Ile Gln Phe Leu Gly Glu Thr
65      70      75      80
Gln Phe Ala Pro Gly Gln Trp Ala Gly Ile Val Leu Asp Glu Pro Ile
85      90      95
Gly Lys Asn Asp Gly Ser Val Ala Gly Val Arg Tyr Phe Gln Cys Glu
100     105     110
Pro Leu Lys Gly Ile Phe Thr Arg Pro Ser Lys Leu Thr Arg Lys Val
115     120     125
Gln Ala Glu Asp Glu Ala Asn Gly Leu Gln Thr Thr Pro Ala Ser Arg
130     135     140
Ala Thr Ser Pro Leu Cys Thr Ser Thr Ala Ser Met Val Ser Ser Ser
145     150     155     160
Pro Ser Thr Pro Ser Asn Ile Pro Gln Lys Pro Ser Gln Pro Ala Ala
165     170     175
Lys Glu Pro Ser Ala Thr Pro Pro Ile Ser Asn Leu Thr Lys Thr Ala
180     185     190
Ser Glu Ser Ile Ser Asn Leu Ser Glu Ala Gly Ser Ile Lys Lys Gly
195     200     205
Glu Arg Glu Leu Lys Ile Gly Asp Arg Val Leu Val Gly Gly Thr Lys

```

210	215	220
Ala Gly Val Val Arg Phe Leu Gly Glu Thr Asp Phe Ala Lys Gly Glu		
225	230	235
Trp Cys Gly Val Glu Leu Asp Glu Pro Leu Gly Lys Asn Asp Gly Ala		240
	245	250
Val Ala Gly Thr Arg Tyr Phe Gln Cys Gln Pro Lys Tyr Gly Leu Phe		255
	260	265
Ala Pro Val His Lys Val Thr Lys Ile Gly Phe Pro Ser Thr Thr Pro		270
	275	280
Ala Lys Ala Lys Ala Asn Ala Val Arg Arg Val Met Ala Thr Thr Ser		285
	290	295
Ala Ser Leu Lys Arg Ser Pro Ser Ala Ser Ser Leu Ser Ser Met Ser		300
305	310	315
Ser Val Ala Ser Ser Val Ser Ser Arg Pro Ser Arg Thr Gly Leu Leu		320
	325	330
Thr Glu Thr Ser Ser Arg Tyr Ala Arg Lys Ile Ser Gly Thr Thr Ala		335
	340	345
Leu Gln Glu Ala Leu Lys Glu Lys Gln Gln His Ile Glu Gln Leu Leu		350
	355	360
Ala Glu Arg Asp Leu Glu Arg Ala Glu Val Ala Lys Ala Thr Ser His		365
	370	375
Val Gly Glu Ile Glu Gln Glu Leu Ala Leu Ala Arg Asp Gly His Asp		380
385	390	395
Gln His Val Leu Glu Leu Glu Ala Lys Met Asp Gln Leu Arg Thr Met		400
	405	410
Val Glu Ala Ala Asp Arg Glu Lys Val Glu Leu Leu Asn Gln Leu Glu		415
	420	425
Glu Glu Lys Arg Lys Val Glu Asp Leu Gln Phe Arg Val Glu Glu Glu		430
	435	440
Ser Ile Thr Lys Gly Asp Leu Glu Val Ala Thr Val Ser Glu Lys Ser		445
	450	455
Arg Ile Met Glu Leu Glu Lys Asp Leu Ala Leu Arg Val Gln Glu Val		460
465	470	475
Ala Glu Leu Arg Arg Arg Leu Glu Ser Asn Lys Pro Ala Gly Asp Val		480
	485	490
Asp Met Ser Leu Ser Leu Leu Gln Glu Ile Ser Ser Leu Gln Glu Lys		495
	500	505
Leu Glu Val Thr Arg Thr Asp His Gln Arg Glu Ile Thr Ser Leu Lys		510
	515	520
Glu His Phe Gly Ala Arg Glu Glu Thr His Gln Lys Glu Ile Lys Ala		525
	530	535
Leu Tyr Thr Ala Thr Glu Lys Leu Ser Lys Glu Asn Glu Ser Leu Lys		540
545	550	555
Ser Lys Leu Glu His Ala Asn Lys Glu Asn Ser Asp Val Ile Ala Leu		560
	565	570
Trp Lys Ser Lys Leu Glu Thr Ala Ile Ala Ser His Gln Gln Ala Met		575
	580	585
Glu Glu Leu Lys Val Ser Phe Ser Lys Gly Leu Gly Thr Glu Thr Ala		590
	595	600
Glu Phe Ala Glu Leu Lys Thr Gln Ile Glu Lys Met Arg Leu Asp Tyr		605
	610	615
Gln His Glu Ile Glu Asn Leu Gln Asn Gln Gln Asp Ser Glu Arg Ala		620
625	630	635
Ala His Ala Lys Glu Met Glu Ala Leu Arg Ala Lys Leu Met Lys Val		640
	645	650
		655

Ile Lys Glu Lys Glu Asn Ser Leu Glu Ala Ile Arg Ser Lys Leu Asp  
 660 665 670  
 Lys Ala Glu Asp Gln His Leu Val Glu Met Glu Asp Thr Leu Asn Lys  
 675 680 685  
 Leu Gln Glu Ala Glu Ile Lys Val Lys Glu Leu Glu Val Leu Gln Ala  
 690 695 700  
 Lys Cys Asn Glu Gln Thr Lys Val Ile Asp Asn Phe Thr Ser Gln Leu  
 705 710 715 720  
 Lys Ala Thr Glu Glu Lys Leu Leu Asp Leu Asp Ala Leu Arg Lys Ala  
 725 730 735  
 Ser Ser Glu Gly Lys Ser Glu Met Lys Lys Leu Arg Gln Gln Leu Glu  
 740 745 750  
 Ala Ala Glu Lys Gln Ile Lys His Leu Glu Ile Glu Lys Asn Ala Glu  
 755 760 765  
 Ser Ser Lys Ala Ser Ser Ile Thr Arg Glu Leu Gln Gly Arg Glu Leu  
 770 775 780  
 Lys Leu Thr Asn Leu Gln Glu Asn Leu Ser Glu Val Ser Gln Val Lys  
 785 790 795 800  
 Glu Thr Leu Glu Lys Glu Leu Gln Ile Leu Lys Glu Lys Phe Ala Glu  
 805 810 815  
 Ala Ser Glu Glu Ala Val Ser Val Gln Arg Ser Met Gln Glu Thr Val  
 820 825 830  
 Asn Lys Leu His Gln Lys Glu Glu Gln Phe Asn Met Leu Ser Ser Asp  
 835 840 845  
 Leu Glu Lys Leu Arg Glu Asn Leu Ala Asp Met Glu Ala Lys Phe Arg  
 850 855 860  
 Glu Lys Asp Glu Arg Glu Glu Gln Leu Ile Lys Ala Lys Glu Lys Leu  
 865 870 875 880  
 Glu Asn Asp Ile Ala Glu Ile Met Lys Met Ser Gly Asp Asn Ser Ser  
 885 890 895  
 Gln Leu Thr Lys Met Asn Asp Glu Leu Arg Leu Lys Glu Arg Asp Val  
 900 905 910

---

Glu Glu Leu Gln Leu Lys Leu Thr Lys Ala Asn Glu Asn Ala Ser Phe  
 915 920 925  
 Leu Gln Lys Ser Ile Glu Asp Met Thr Val Lys Ala Glu Gln Ser Gln  
 930 935 940  
 Gln Glu Ala Ala Lys Lys His Glu Glu Glu Lys Lys Glu Leu Glu Arg  
 945 950 955 960  
 Lys Leu Ser Asp Leu Glu Lys Lys Met Glu Thr Ser His Asn Gln Cys  
 965 970 975  
 Gln Glu Leu Lys Ala Arg Tyr Glu Arg Ala Thr Ser Glu Thr Lys Thr  
 980 985 990  
 Lys His Glu Glu Ile Leu Gln Asn Leu Gln Lys Thr Leu Leu Asp Thr  
 995 1000 1005  
 Glu Asp Lys Leu Lys Gly Ala Arg Glu Glu Asn Ser Gly Leu Leu Gln  
 1010 1015 1020  
 Glu Leu Glu Glu Leu Arg Lys Gln Ala Glu Lys Ala Lys Ala Ala Gln  
 1025 1030 1035 104  
 Thr Ala Glu Asp Ala Met Gln Ile Met Glu Gln Met Thr Lys Glu Lys  
 1045 1050 1055  
 Thr Glu Thr Leu Ala Ser Leu Glu Asp Thr Lys Gln Thr Asn Ala Lys  
 1060 1065 1070  
 Leu Gln Asn Glu Leu Asp Thr Leu Lys Glu Asn Asn Leu Lys Asn Val  
 1075 1080 1085  
 Glu Glu Leu Asn Lys Ser Lys Glu Leu Leu Thr Val Glu Asn Gln Lys

WO 99/04265

1090 1095 1100  
 Met Glu Glu Phe Arg Lys Glu Ile Glu Thr Leu Lys Gln Ala Ala Ala  
 1105 1110 1115  
 Gln Lys Ser Gln Gln Leu Ser Ala Leu Gln Glu Glu Asn Val Lys Leu  
 1125 1130 1135  
 Ala Glu Glu Leu Gly Arg Ser Arg Asp Glu Val Thr Ser His Gln Lys  
 1140 1145 1150  
 Leu Glu Glu Glu Arg Ser Val Leu Asn Asn Gln Leu Leu Glu Met Lys  
 1155 1160 1165  
 Lys Arg Glu Ser Lys Phe Ile Lys Asp Ala Asp Glu Glu Lys Ala Ser  
 1170 1175 1180  
 Leu Gln Lys Ser Ile Ser Ile Thr Ser Ala Leu Leu Thr Glu Lys Asp  
 1185 1190 1195  
 Ala Glu Leu Glu Lys Leu Arg Asn Glu Val Thr Val Leu Arg Gly Glu  
 1205 1210 1215  
 Asn Ala Ser Ala Lys Ser Leu His Ser Val Val Gln Thr Leu Glu Ser  
 1220 1225 1230  
 Asp Lys Val Lys Leu Glu Leu Lys Val Lys Asn Leu Glu Leu Gln Leu  
 1235 1240 1245  
 Lys Glu Asn Lys Arg Gln Leu Ser Ser Ser Ser Gly Asn Thr Asp Thr  
 1250 1255 1260  
 Gln Ala Asp Glu Asp Glu Arg Ala Gln Glu Ser Gln Ile Asp Phe Leu  
 1265 1270 1275  
 Asn Ser Val Ile Val Asp Leu Gln Arg Lys Asn Gln Asp Leu Lys Met  
 1285 1290 1295  
 Lys Val Glu Met Met Ser Glu Ala Ala Leu Asn Gly Asn Gly Asp Asp  
 1300 1305 1310  
 Leu Asn Asn Tyr Asp Ser Asp Asp Gln Glu Lys Gln Ser Lys Lys Lys  
 1315 1320 1325  
 Pro Arg Leu Phe Cys Asp Ile Cys Asp Cys Phe Asp Leu His Asp Thr  
 1330 1335 1340  
 Glu Asp Cys Pro Thr Gln Ala Gln Met Ser Glu Asp Pro Pro His Ser  
 1345 1350 1355  
 Thr His His Gly Ser Arg Gly Glu Glu Arg Pro Tyr Cys Glu Ile Cys  
 1365 1370 1375  
 Glu Met Phe Gly His Trp Ala Thr Asn Cys Asn Asp Asp Glu Thr Phe  
 1380 1385 1390

<210> 815  
 <211> 647  
 <212> DNA  
 <213> Homo Sapiens

<400> 815  
 ccacgcgtcc gcctcccgtt ccctcttccg cttgcgctgc cgcaggacca tggccaacct 60  
 ggagcgcacc ttcacgcgca tcaagccgga cggcgtgcag cgcggcctgg tgggcgagat 120  
 catcaagcgc ttcgagcaga agggattccg cctcgtggcc atgaagtcc tccgggcctc 180  
 tgaagaacac ctgaagcagc actacattga cctgaaagac cgaccattct tccctgggct 240  
 ggtgaagtac atgaactcag ggccggttgt ggccatggtc tgggaggggc tgaacgtggt 300  
 gaagacaggc cgagtgatgc ttggggagac caatccagca gattcaaagc caggcaccat 360  
 tcgtggggac ttctgcattc aggttggcag gaacatcatt catggcagtg attcagtaaa 420  
 aagtgtctgaa aaagaaatca gcctatgggt taagcctgaa gaactggttg actacaagtc 480  
 ttgtgtctcat gactgggtct atgaataaga ggtggacaca acagcagtct ccttcagcac 540  
 ggcgtgggtgt gtccctggac acagctcttc attccattga cttagaggga acaggattga 600  
 tcattctttt atagagcata ttgccaata aagcttttgg aagccgg 647

<210> 816  
 <211> 152  
 <212> PRT  
 <213> Homo Sapiens

<400> 816  
 Met Ala Asn Leu Glu Arg Thr Phe Ile Ala Ile Lys Pro Asp Gly Val  
 1 5 10 15  
 Gln Arg Gly Leu Val Gly Glu Ile Ile Lys Arg Phe Glu Gln Lys Gly  
 20 25 30  
 Phe Arg Leu Val Ala Met Lys Phe Leu Arg Ala Ser Glu Glu His Leu  
 35 40 45  
 Lys Gln His Tyr Ile Asp Leu Lys Asp Arg Pro Phe Phe Pro Gly Leu  
 50 55 60  
 Val Lys Tyr Met Asn Ser Gly Pro Val Val Ala Met Val Trp Glu Gly  
 65 70 75 80  
 Leu Asn Val Val Lys Thr Gly Arg Val Met Leu Gly Glu Thr Asn Pro  
 85 90 95  
 Ala Asp Ser Lys Pro Gly Thr Ile Arg Gly Asp Phe Cys Ile Gln Val  
 100 105 110  
 Gly Arg Asn Ile Ile His Gly Ser Asp Ser Val Lys Ser Ala Glu Lys  
 115 120 125  
 Glu Ile Ser Leu Trp Phe Lys Pro Glu Glu Leu Val Asp Tyr Lys Ser  
 130 135 140  
 Cys Ala His Asp Trp Val Tyr Glu  
 145 150